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GOING A BUNDLE

New low-cost option for Archie buyers

Despite its educational and academic tag, the new Acorn Archimedes 3000 will burst through as 'the ultimate games machine'. That's the hope of Cambridge International Software, which is putting the first bundle for the machine.

The £699 (£809.85 including VAT) deal includes a mouse, joystick and twelve games – and, in a significant new development, a modulator enabling you to run the A3000 through a TV set. The modulator took just a month to develop and had to get round the problem of the Archie not supplying enough power by itself to run one.

While not of high enough quality for word processing, a television would be fine for playing games – and considerably cheaper than monitors for the Archimedes which cost £250 or so, putting the cost of the full system well over the thousand pound mark.

Included in the bundle is the inevitable Zarch, plus Pacmania, Terramex, Corruption, Fish, Repton 3, Conqueror, Orion, 3D Pool and Star Trader.

CIS's David Kelly was confident that the machine could establish itself as the choice of the up-market games player, despite doubts by reviewers of the A3000, which is to be officially launched at the Acorn User Show on July 21st, that any games would actually be written for a machine with such an academic and serious image. 'Our market research showed us that games would be supported. Grandslam and Rainbird were two of the software houses that said they would give it full support,' he enthused.

'There are already 56 games for the Archimedes,' he continued, 'and we have six more lined up.'

He added that the project was being done with the approval of Acorn. 'They were very enthusiastic about it and gave it their full support,' he said.

Acorn's Michael Page was cautious, saying that the company does not specifically endorse others' packages, but he welcomed opportunities for their products to be sold. 'If someone adds value to a package, in this case the modulator and joystick and so on for £50, it is up to the customers to decide whether it's worth the extra money,' he offered.

CIS is also understood to be working on a sound sample creation disk for the machine and a package for Teaching English as a Foreign Language – the company is based in the same premises as the Cambridge School of English. They are also working on a music engraving package.

The bundle should be available in time for the official launch of the Archie at the Acorn User Show. Details on 01-278 6622 from David Kelly or Michael Fowler.

● ***Express will be giving away an Archimedes A3000 plus monitor in next week's competition. The winner will be presented with their prize at the Acorn User Show on Saturday July 22nd.***

• Modulation in all things: How will the TV version of Archie games compare with the hi-res monitor?

It's a Cyn

Micronet is set to offer subscribers an altogether new kind of personal service. Keying page 82855 takes you straight into the boudoir of low-life Queen Cynthia Payne where she'll reply with advice on any personal problems you may care to air. Madame Cyn's career has taken her from prostitution to politics, from tart to TV celeb, from whip-wielder to word-smith and now to on-line agony aunt. Her first-hand experience can be gleaned for only 20p. Luncheon vouchers aren't accepted.

• Whipping up interest: Madame Cyn goes on-line

TIME'S UP FOR VIRUSES

Tricom Communications has announced the release of its *Custodian* data protection package designed to thwart the notorious 'time-bomb' viruses.

Time bombs use a computer's clock to activate an illicit program designed to wipe hard disks. One of the most famous was the 'Jerusalem' or 'PLO Virus' set to go off on the 40th anniversary of the dissolution of Palestine, destroying files on computers connected to the Hebrew University's mainframe.

Central to *Custodian*'s protection measures is its ability to call-back an on-line user for verification of multi-level passwords In addition, users are issue with a smart-card which displays a six-digit personal identification number which changes every 60 seconds and is synchronised to the host computer.

Further details from Tricom on 024 026 3951.

Get your Fax right

• Matter of fax: First portable with built-in fax modem

Leading PC portable manufacturer Zenith has launched the first battery powered PC portable with a built-in fax modem.

The 286-based SupersPort portable with Skyfax Modem can receive and fax, both text and graphics, and is "fully approved and compatible with the majority of the world's telephone systems". For further information, contact Zenith on 0800 525156.

This week, Express has put 10 popular PC portables through their paces. You can check out the results starting on page 15.

Time-bomb set for 12th October

A new virus, codenamed *Datacrime* has been discovered doing the rounds of PC systems worldwide. Its code is designed to destroy storage devices on PC hard disks on 12th October – and its origin remains a total mystery.

This alarming news comes from a new virus-buster group set up in the UK as part of a international initiative drawing on the world's top experts in the field. *Virus Bulletin* is launching a monthly news and information publication designed to provide practical solutions to virus contaminations. Concentrating on attacks on PC and Mac systems, *Virus Bulletin* will provide technical data, advanced warnings of forthcoming memory marauders and an unbiased assessment of vaccine packages available on the market.

Bulletin's Edward Wilding told *Express*: "We aim to be a repository of virus knowledge but subscribers will need to be verified. Obviously in order to crack a virus we need to be quite technical and that could lead to people just taking the code and writing a new strain. So we won't be printing executable code or replication mechanisms."

Wilding believes virus proliferation is assuming runaway proportions. In the last two months the number of known live viruses has gone up by 150% excluding the numerous subtly altered clones of the originals.

But he adds, "There's so much nonsense out there about viruses... we have to both quash the wilder rumours and warn of the real ones".

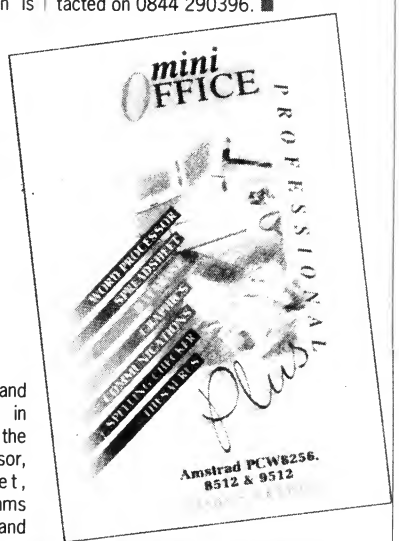
The *Datacrime* virus is currently being tested with a range of vaccines to see which ones offer protection. *Virus Bulletin*'s first publication is due out on 3rd July, costs £195 a year and can be contacted on 0844 290396. ■

MINI OFFICE SHAMBLES

Database has hit more trouble with *Mini Office Professional Plus* for the Amstrad PCW. Hundreds of defective disks have had to be recalled after a batch slipped out prematurely leaving irate users with an unusable program – five months after the scheduled release date.

The program is an upgrade to *Mini Office*, a suite of five programs which has sold 50,000 on the PCW alone.

Mini Office Plus was promised for release in February. Database however ran into problems with the programmer who, it is rumoured, left half way through development, and had to postpone the release several times. It has still not been officially finished. Those who sent off cheques have been given disks and money-off vouchers to compensate them for the non-arrival of the new product, which boasts a thesaurus and spell checker in addition to the word processor, spreadsheet, database, comms module – and even a graphics package.



• Mini Office, big problems: Duds recalled

The program which slipped out had a spell checker that didn't work within the word processor, could not load *LocoScript* or *Protext* files as promised, and had an American thesaurus.

It appears the new batch was sent out in error while marketing staff were on holiday. Denise Williams of Database told *Express*: "We found a major bug on the word processor and we have recalled the program through the distributors and dealers. We will replace it when the new version is available."

"There are no problems with it any more. All the bugs have been fixed," she said. The new version was said to be at the duplicators and about to be released "any day now".

Despondent marketing man Chris Payne told us: "It's been an absolute nightmare for us. We've been beset by a ridiculous number of bugs. It'll be a relief when it's all over."

The problems have caused a lot of anguish for PCW owners. *Mini Office Plus* is the only major release for the machine this year and Database is one of the few software houses still supporting the PCW. ■

Amiga A600 ?

In the wake of our exclusive report last issue on Atari's intention to launch its 4096-colour, four-channel stereo STE machine later this year, Commodore is remaining tight-lipped on plans to up the stakes in the war between the arch-rival 16-bitters.

One rumour circulating late last week was the possibility of Commodore replacing the A500 with a 1 Mbyte machine for the same price. However, sources close to the company stress there are no plans to drop the A500 whilst admitting there are 1 Mb Amigas in warehouse storage in the States. Although Commodore's Tech Support Group refer to these machines as A600s, a Commodore spokesperson poured cold water on rumours to launch a 1 Mb Amiga, stating, "There's no plans at the moment. There's some doubt as to what they're going to do with them, maybe they'll just drop the price of the A500 if and when the STE arrives." ■

• What next? Commodore keep their Amiga upgrade plans secret

Not so smart

The newly released* 1989 Smart Card Annual *report forecasts that there will be 200 million of the little beauties in circulation by 1995.

Seen as the memory medium of the future, smart cards will come in several different configurations. Some will have built-in data terminal capabilities, microprocessors, rewritable memories and even keyboards, displays and power supplies.

With about 20 million already on the streets of the world, the report also notes that Visa and Mastercard holders will shortly be treated to smart replacements enabling a whole new range of uses. Further info from PLF Communications on 0733 60535. But the price for knowledge on this piece of the future ain't so smart – a mere snip at £1,416.12! ■

• Get smart – and a bank loan

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COMMENT

The concealed slower delivery

Computer companies are notorious for advertising, announcing or otherwise hyping products which are not documented, not ready for release, and in many cases not even written. Everyone will be ticking off in their head a few examples – few companies have not been guilty at one time or another.

Some companies have undoubtedly used the reaction to the pre-production advertising to gauge the demand for the product, and decide on the basis of that whether to proceed; it may or may not ever appear.

Perhaps, in the early days of computing when it wasn't even certain whether there was any market at all for those self-assembly kits, this was more understandable than it is now. It still happens, however, and wise prospective buyers take adverts and press announcements with a pinch of salt until the product appears in the shops.

Database's problems with the upgrade to Mini Office, one of the best selling pieces of software ever on the PCW, are undoubtedly a combination of bad luck and over-hopeful planning rather than the sharp practices above.

But it is most unfortunate that a product should be advertised – even once – six months before it is even half-ready, and for the first copies to slip out to be riddled with bugs.

Such things only serve to reinforce the image, however unfair it may be in some cases, of the computer hardware and software manufacturers as clumsy, disorganised or plain devious.

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Snippets

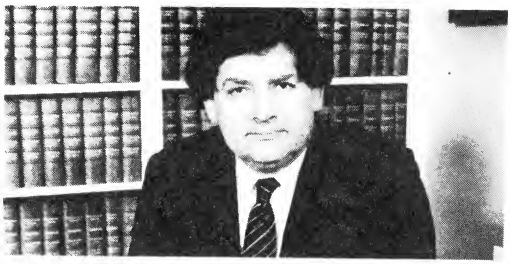
● ***DigiWorks 3D is an innovative US Amiga graphics processing program, allowing you to create 2D and 3D objects from any graphic image, such as a digitised picture or a piece of clip-art. Further details from UK importer, Amiga Centre Scotland on 031 557 4242.***

● ***Electronic Arts is working on a new 16-bit role-playing adventure game, due for release sometime in the Autumn. The Hound of Shadow marks the software debut for role-playing outfit Eldritch Games, and features a new gaming system called Timeline, which promises to be a major breakthrough in role-playing design techniques.***

● ***Top 16-bit games producer, Mirrorsoft is planning a new look for its forgotten PSS wargaming label, with the release of "more innovative" products over the coming months. Waterloo, the first of these new style games, is due for imminent release on ST, Amiga and PC. Catch the full review on page 42.***

● ***16-bit bargain hunting gamesters now have the choice of another compilation pack courtesy of Elite. The Story So Far... Volume I contains the racing-sim Buggy Boy, vertical shoot-'em-up Ikari Warriors, platforming Beyond The Ice Palace, and paperless Battleships – all for £19.99 on the ST and Amiga.***

● ***Rombo Productions' eagerly awaited real-time video digitiser for the Amiga has been delayed due to bugs in the HiSoft BASIC Compiler being used to write the necessary controller software. Rombo is waiting for HiSoft to finish writing a Compiler upgrade, and should have its £99 Vidi-Amiga ready for sale sometime next month.***



• Lawson: A tax on the innocent? Micronet duty will stay

TAX PLEA IGNORED

Attempts by Micronet to reverse the Government's decision to slap VAT on its services have come to nothing.

A 3,000 strong petition was presented to chancellor Nigel Lawson last month (*Express* 27) pleading for a reversal of the decision.

Micronet and its disgruntled members feel they are being penalised by a tax designed for business purposes rather than leisure.

Micronet reckons its service is more like a paper based publication and therefore should be exempt. This view is not shared by the Treasury. It responded: "The taxation of Micronet is now in line with the treatment of other non printed material such as tape and disks, which are standard rating whether supplied to businesses or members of the public."

Micronet's David Rosenbaum told *Express*: "We're responding to this and making the point that the issues involved have not been properly understood. We still have a very strong case and the implications are very wide." Rosenbaum scotched any notions that the service will give up the fight.

Subscribers can avoid the 15 per cent tax by paying their yearly rate in one go as opposed to quarterly. Micronet has "put together this package" which bypasses the tax. ■

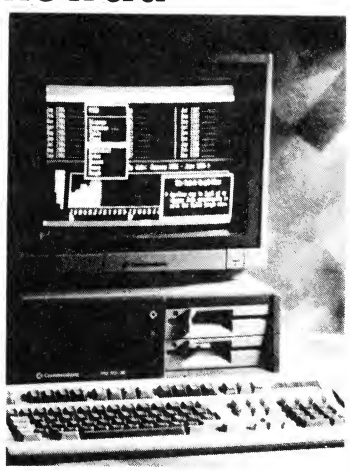
Commodore's Amstrad Bundle Beater

In a bid to go all out for the low-end business market, Commodore has announced a new bundle for its IBM XT clone, the PC10.

From July 1st for only £949+VAT, you'll be able to buy the twin drive machine with mono monitor, dot matrix printer, and Ashton Tate's world-best seller *Framework 2*.

This an integrated business package very similar in price and performance to the *Symphony* suite currently being bundled with Amstrad's PC2086 for £999+VAT.

But for this price the PC2086 comes with a single drive making the disk-intensive *Symphony* very cumbersome. Commodore is making strong hints that this is only the first of many similar business bundles in the pipeline. ■



• PC10: Arresting activity by Commodore

SSA Computers is releasing a 286-based do-it yourself PC kit. The 'Clipper' hardware package comprises motherboard, power supply, disk drives, MS DOS and monitor along with instructions and an accompanying show-as-you-go video. Three configurations are available – a 7.5Mhz 286 for £675 + VAT, a 12MHz 286 for £749 + VAT and a 20MHz 386 for £1,195 + VAT. The company is aiming the kits at schools and colleges where pupils can construct the PCs as class projects. But if you have a screwdriver and steady hand and fancy a fully functioning PC at a cut-down price give SSA a call on 01 840 1477.

Licence to File

The drug baron baddies in the latest 007 flick, Licence to Kill, can be seen using the Masterfile database for the Speccy, Beeb, PCW and PC to keep track of their nefarious doings. Why a database costing less than £50 should find its way into a multi-million dollar movie is a secret even Bond himself might not unearth. But the reason's simple – Masterfile has been used for years by 007 producers to catalogue the series' publicity stills.

Whether Domark, who has acquired the rights to the movie for software release, will include Masterfile as part of the proceedings remains to be seen. ■

VIRUS-BUSTERS ARE AFTER YOU

The anti-virus body CoTRA – the Computer Threat Research Association – is now starting to enrol members of the public.

The body aims to analyse and find solutions to problems caused by viruses, hacking and other threats to computer security. Newsletters detailing the latest virus news are promised as well as meetings and conferences. The first meeting, on viruses, is planned for July 12th.

Membership costs £15 (Student) £50 (Full) or £200 (Corporate). Further details from CoTRA, 144 Sheerstock, Haddenham, Bucks HP17 8EX, or 15 Chivers Drive, Finchampstead, Wokingham, Berks RG11 4EW. ■

As easy as 1-2-3

By September, the new national curriculum in all primary schools will include attainment targets specifying that children as young as seven should be able to use everyday software packages.

A report published last Tuesday by a committee of the National Curriculum Council states that the brightest pupils should be able to create, amend and present text on a word processor and enter, select and retrieve fields in a database by the age of seven.

Under the plans, endorsed by Kenneth Baker, all pupils aged between 5 and 16 will have to follow a course of technological studies stressing close links between education and business. As such, the emphasis will be placed on project-based work – what pupils can do rather than what they know – and in this sense it breaks new ground.

Hitherto, education policy in schools has been accused of failing to meet the needs of the nineties by playing down the importance of technological studies.

Perhaps most radical of all is the proposal for a new school subject 'Design and Technology' which will borrow heavily from what is taught at present in art, business studies, home economics and computer studies classes. Some of these may disappear entirely from the school timetable.

• When did you last see your teacher? Computers to feature in new National Curiculum

But, as Teachers Union spokesman Doug McAvoy commented on receiving the report, it's doubtful whether the government provides sufficient resources to make the proposals workable.

Primaries have been forced to look to parents to supply hardware as local authority funds have been taken up with trying to supply secondary schools' needs. A recent *Times Education Supplement* survey found an average of only 1 computer to every 69 children in primary schools. ■

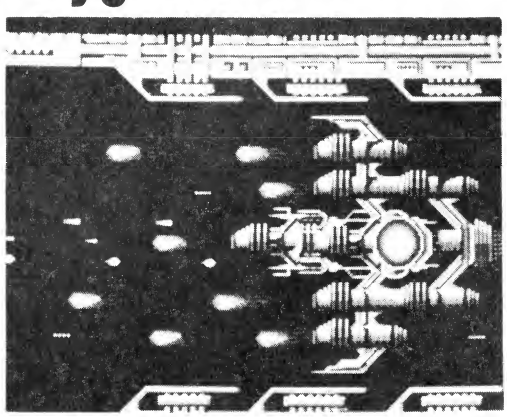
Tetris Banned

Atari Games, and its subsidiary Tengen, has failed in its bid to secure marketing rights to cult hit *Tetris* for the Nintendo console in the States.

An injunction was granted by a San Franciscan Court on June 21st preventing Tengen from continuing to produce *Tetris* video cartridges and advising retailers to remove the product from their shelves. The exclusive worldwide rights to *Tetris* for play on home video game systems are owned by Nintendo itself, having bought them direct from the Soviet government in March this year.

The decision is a further thorn in the side of Atari, who are desperate to break the monopoly the Japanese giant Nintendo has secured in the USA games market. ■

Psygnos-US



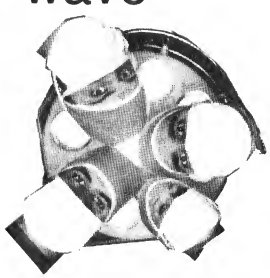
• Menace for consoles: Psygnosis games Sega and Nintendo bound

In a bid to break into the fledgling 16-bit console market, top games house Psygnosis has signed a deal with US publishers First Star.

Old and established Psygnosis titles such as *Barbarian*, *Obliterator* and *Terrorpods* will find their way onto Sega and Nintendo consoles, closely followed by the more recent *Menace*, *Baal*, *Ballistix* and *Blood Money*.

First Star is best known for its *Spy vs Spy*, *Boulder Dash* and *Superman* releases; all hit titles on games consoles. The strategy is to establish strongholds in America and Japan before turning attention to Europe. ■

Brain wave



A bizarre follow up to Software Toolworks' Life and Death surgery simulation is being planned.

The Californian company's programmers are putting together a "complicated" brain surgery simulation which they hope will be "as realistic as possible". Amiga owners that way inclined will be able to conduct difficult brain operations in the safety of their own homes within a few months. Life and Death itself concerns a patient suffering from appendicitis. ■

TOP 20 *Full Price* GAMES

1	**Robocop** OCEAN *Spectrum, C64, CPC, ST, Amiga, Others*	1
2	**Forgotten Worlds** US GOLD *Spectrum, C64, CPC, ST, Amiga*	4
3	**Microprose Soccer** MICROPROSE *Spectrum, C64, CPC, ST, Amiga*	2
4	**Run the Gauntlet** OCEAN *Spectrum, C64, CPC, ST, Amiga*	7
5	**Dragon Ninja** OCEAN *Spectrum, C64, CPC, ST, Amiga*	3
6	**Emlyn Hughes** AUDIOGENIC *Spectrum, C64, CPC*	5
7	**Football Manager 2** ADDICTIVE *Spectrum, CPC, ST, Amiga, Others*	13
8	**Running Man** GRAND SLAM *Spectrum, C64, CPC, ST, Amiga*	6
9	**Crazy Cars II** TITUS *Spectrum, CPC, ST, Amiga*	14
10	**Kenny Dalglish** COGNITO *Spectrum, ST, Amiga*	11
11	**Fun School 2** DATABASE/MANDARIN *Spectrum, C64, CPC, Amiga, ST*	RE
12	**Populous** ELECTRONIC ARTS *ST, Amiga*	8
13	**Silkworm** VIRGIN *Spec, C64, CPC, ST, Amiga*	9
14	**Operation Wolf** OCEAN *Spectrum, C64, CPC, ST, Amiga*	17
15	**Middle Earth** MELBOURNE HOUSE *Spec, C64, CPC, ST, Amiga, Others*	19
16	**Out Run** SEGA/US GOLD *Spec, C64, PC, ST, Amiga, Others*	RE
17	**Le Mans** IMAGINE *Spec, C64, CPC, ST, Amiga*	RE
18	**Renegade 3** IMAGINE *Spectrum, C64, CPC*	18
19	**Kick Off** ANCO *C64, ST, Amiga*	10
20	**Double Dragon** MELBOURNE HOUSE *Spec, C64, PC, ST, Amiga*	NE

TOP TEN *Budget* GAMES

1	**Postman Pat** ALTERNATIVE *Spectrum, C64, CPC*	13
2	**Enduro Racer** HIT SQUAD *Spec, C64, CPC, ST, Others*	1
3	**Treasure Island** CODE MASTERS *Spec, C64, CPC*	8
4	**1942** ENCORE *Spectrum, C64, CPC, Others*	4
5	**Daley Thompson** HIT SQUAD *Spec, C64, CPC, Others*	7
6	**Turbo Esprit** ENCORE *Spec, C64, CPC*	9
7	**Rambo** HIT SQUAD *Spectrum, C64, CPC*	10
8	**Army Moves** ALTERNATIVE *Spectrum, C64, CPC, ST, Amiga*	NE
9	**Arcade Flight Sim** CODE MASTERS *Spectrum, C64, CPC*	5
10	**Shanghai Warriors** PLAYERS *Spectrum, C64, CPC*	6

RE re-entry • NE new entry • Last week's positions

Compiled by Gallup

The charts shown are based on the Open Market, that is, retailers who stock a broad range of products. All charts shown are copyright of Gallup.

The show mustn't go on

Well, that was it: the last Atari show of all. Edmund Blake was there...

Another year, another dreary Atari show – they really are becoming drearier every year. Sixty eight stands of semi-interested software salesman trying to shift as many discontinued, end-of-line, dross products as possible. Lots of cash changed hands but not for anything innovatory.

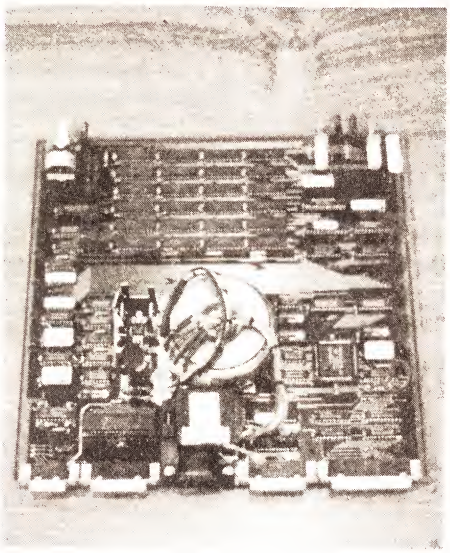
The show itself was held in the Alexandra Palace in deepest Wood Green, and although the venue is large, airy and situated in pleasant surroundings, it's a drag to get to. The organisers – Database Exhibitions – thoughtfully provided a shuttle bus service between Kings Cross and Ally Pally, but the schedule of one bus every 10 minutes was a little hopeful.

The Show? Well, most of the Atari world's interested parties managed to summon the motivation to set up a stand, but the general air was of everything but excitement. Even the punters looked as if they'd just recovered from a major debilitating illness and could only just summon the strength to drag themselves around.

Launch break

The major product launch of this year's show has to be the Parsec graphics expansion board from Elmtech Research LTD. This device has been under discussion and imminent release for simply ages, the boards were first shown eighteen months ago but since then none have appeared.

Elmtech Research have finally managed to solve problems with RAM chip supply and iron out the bugs in the original boards and are now on the verge of marketing the device (do you have a feeling of *déjà vu*?). Ten pre-production models were on the stand – all without cases – with plentiful supplies to follow by mid August.



• Wibble wibble irrelevancy wibble

The device is intended to provide the power necessary for high speed graphics processing. To this end, it has a 32 bit processor running at 50MHz offering a performance of 6.25 MIPS.

It has a programmable resolution of up to 1024 x 768 pixels and 4096 colours (upgradable to 16 million), a memory capacity of 5.5 Mbytes, SCSI and RS232 interfaces as standard. The board will eventually sell for £799 + VAT.

Veni, vidi... exit

NOne other product worth a look is the VIDI ST from Rombo. This is a video frame grabber which will capture a moving video image at 1/50th second, has an animation feature of up to 25 frames per second, stores captured frames in DEGAS and NEO format and retails for the incredibly low price of £99.95. It comes complete with software and will work with any ST.

And that's it! Absolutely nothing for the 8-bit machines save the usual dust covers and box-shifting of five year old cartridge software. This is very possibly the last Atari show – the next one is being incorporated into the multi-format Computer Shopper Show in November. Perhaps this will inject a note of excitement into the show – it's much needed.

PC Engine

YOU GET MORE FOR YOUR MONEY THAN JUST OUR NAME

MICRO MEDIA SEAL!

Micromedia are the ONLY Company committed to customer support for the fabulous PC Engine games console.

1. For a start we are an established company who will be around to look after you in a year's time, and not "gone with the wind" (and your money) - Micromedia are suppliers to the Computer Shops. Chances are, you'll find us the only Company supplying them with software for our customers too.
2. Micromedia's own company "Engine-eering" repairs only our machines - in fact right up to full replacement internals - and is presently the only professional repair source in the country.
3. The PC Engine user club is only available to Micromedia owners (who are automatically logged onto our computer) and is FREE. You will get the monthly magazine and access to our telephone hotline, now and into the future.
4. Picture quality and hardware reliability are far superior. Don't take our word for it, your local computer shop will soon be stocking it (and if not why not), so see for yourself. Alternatively, write for details of special mail order offers.

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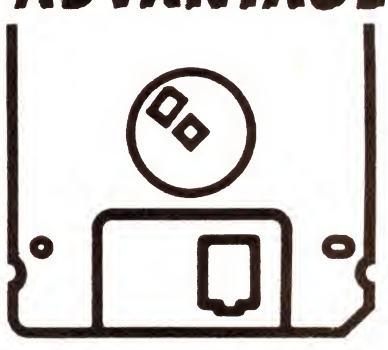

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MATCHING ACCESSORIES

With MultiDesk you can be in two places at once. Jerry Glenwright explains

MULTIDESK ● ATARI ST ● £29.95 ● I.S.M. (CODEHEAD SOFTWARE) 0983 864674

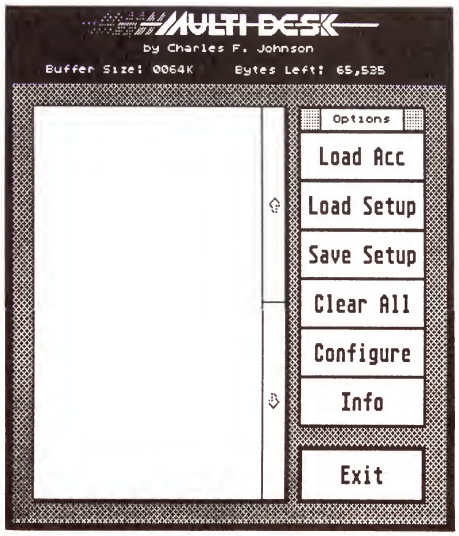
Perhaps the best thing about machines which use graphics operating systems is the ability to use pop-up utilities in the middle of using an application, then return to the original application without having to reboot and load again.

Say you're writing a letter but are stuck for that vital word. A click on the mouse summons a selection of utilities (the 'desktop') from which you select a thesaurus, choose your word, and return to your letter all in one smooth action.

The Atari ST, with its desk top, lets you load up to six utilities like a calendar, calculator, clock, thesaurus, dictionary – even games and puzzles.

But what if you've used the six available desk top slots yet still need one more for that great new puzzle when you're bored with word processing. What if you need 20 more slots? 50?

FEATURES ● CodeHead Software with its new product MultiDesk, is one of the latest American companies to receive marketing in the UK under the ISM distribution flag – deservedly! This iis going to provide CodeHead with a lot of new customers.



Basically, the program lets you load and use more than the six desk top accessories currently the maximum available on the ST, but also lets you run desk top accessories as if they were ordinary programs, define your own memory buffer and install as many accessories as you like all in one of the standard desk top slots.

USER INTERFACE ● To get MultiDesk up and running you just place the program in the root directory of a boot disk and fire up your ST.

MultiDesk is installed in memory and is selected by clicking on the desk option on the menu bar. You are presented with the MultiDesk dialogue box in the middle of the screen.

From this, you can load single accessories or a previously defined set-up, clear out the current accessories from memory and configure buffers to let you allocate just as much or as little of your precious RAM to accessories as you'd like.

All you have to do is to provide a potential boot disk with a directory for the accessories you wish to use, bung them all into it, fire up MultiDesk, and tell it which accessories you require – all the accessories you could ever use and more besides.

You can even load MultiDesk into itself, meaning that there is no limit (apart from RAM) to the number of utilities you can load at any one time. CodeHead Software says this nesting feature works up to 130 levels.

DOCUMENTATION ● Adequate if not exactly comprehensive.

VERDICT ★★★★★

Excellent. It worked perfectly with all the accessories in my collection with nary a murmur. Heartily recommended and thoroughly deserving of the coveted five stars.

HIGHLIGHTS	DRAWBACKS
• Easy to install • Simple to use • Unlimited on-line accessories • Cheap	• Accessories which make use of the GEM evnt_timer call can cause problems

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EXPRESS MAIL

Dear Reader

More pages packed with another selection from our postbag and Rob Ainsley's replies. Have you got something to say? Make your voice heard in computing's liveliest letters page! Send your contributions to:
Express Mail, 4 Queen Street, Bath, Avon BA1 1EJ

PS. Sorry, we just don't have the time to give personal replies, whether you include an SAE or not. We're too busy putting Express together!

PROGRAMMERS HIT BACK

Readers write in discussing the price of computer software and the pros and cons of piracy. Out of all those opinions, only an extremely small percentage are from programmers who must scrape a living in this line of work.

I, for one, do not live in abject poverty on a comfortable five figure sum per year, but career advancement in computer games programming is almost non-existent.

One can either work freelance or in-house, and could be senior to other members of staff, but still, others like me cannot hope to break £30,000 per annum when piracy is still rife.

Most programmers work a 65+ hour week, compared to the general 40 hours, yet the harder one works to create a superior product, it is pirated even more.

This implies a simple equation. A programmer can write a lot of cheap and nasty games, and make a quick profit for little work. But programmers normally try to create games that are breaking some boundary, in playability, technically etc, so they spend more time creating a better product, which gets ripped off.

If the pirating fraternity want poor software, fine. But if they do continue pirating, budget/cheapo software becomes more profitable to programmers. They are cutting their own throats.

So, pirates, if you think you are untouchable, macho, great, clever, etc, why not call by sometime so I may explain myself more 'efficiently'.
Gary Partis (Programmer and 1st Dan KUGB JKA) Ryton, Tyne and Wear

● ***Thanks for your points. I'm sure a lot of readers, especially computer journalists, would quite like to break the £10,000 barrier, never mind the £30,000 one!***

RUDE BOYS RULE?

On occasions I wish to purchase software and other bits and pieces for the machine. As I travel around in my job, I tend to call in to computer shops as I'm passing to enquire as to whether they are Spectrum stockists or can tell me of anywhere locally that is.

The sad fact is that if they are not Spectrum dealers, all I get out of them is "smart" answers and rude comments such as "try Woolworth's" or "you want to buy one of these" normally accompanied by a smug grin to whoever happens to be around. Not only is this rude and uncalled-for but ultimately backfires on them because my daughter is currently in the market for a PC. Well, all you clever sales assistants, you're not getting my custom!

The advice you give in Tech Tips from time to time of buying the machine to suit your particular purpose does not seem to occur to these "gentlemen"!
RW Taylor, Braintree, Essex

● ***Shop assistants and computer journos have access to all the best computers and best software and it's very easy to be blasé, telling people they ought to buy Amigas and Archies and so on. Most of us can't afford to spend money like that casually.***

So come on, some of you behind the counter, just because someone chooses to use a Speccy or C64 doesn't mean they're a wally. Or even a QL or MSX.

OOPS...

You tell us in your *Matrix Layout* review (*Express* 31) that OOP is '...a method of using existing program modules along with flowcharts provided by the user to write full-featured programs automatically.' Oh no it isn't. That's automatic code generation.

Object Orientation is a way of viewing the world as a bunch of objects or entities. Each of these objects has its own attributes, and has actions that can beperformed on it.

Imagine that you are writing a program to handle Air Traffic Control at an airport. Some of the objects in the program might be aircraft, runways and passengers. The attributes of an 'aircraft' object might include 'passenger capacity' and 'fuel state' and its actions would include 'land' and 'take off'. Because these belong to only the 'aircraft' object, it should then be impossible to make mistakes such as refuelling a passenger, or giving runway instructions to land on an aircraft.

As well as making programs more reliable, OOP does indeed encourage software reusability. To continue with the example, it might be that the 'passenger' object from our airport program could be reused in another programs dealing with railway reservations.

The approach works in any language, but a few languages specifically support it, generally referred to as 'Object Oriented languages'. Simula and Smalltalk are probably the best known, Ada tries to be but doesn't quite make it.

Automatic code generation is a wonderful idea, and Matrix Layout may well be an Object-Oriented package. What concerns me is the use of a term with an established meaning as a piece of gee-whiz jargon. Computing already has too much sloppily-based terminology without adding to it.

As for OOP referring to the 'latest high-tech software packages...' – well, Simula has been around since 1967.
John Salt, Bedford

● ***Thanks – Matrix Layout describes itself primarily as an OOP package and I'm sure most of us unenlightened ones would have associated this with the automatic code generation feature which it is so proud of.***

JOB'S WORTH?

I tend to agree with Timothy Smith (*Express* 29) about getting a job in the computer industry. I'm just finishing the first year of an HND sandwich course in Computer Studies and have been lucky enough to get a 12-month industrial placement. However, when looking through the computer job ads in local papers etc, just about every post requires at least 2 years' experience. This makes it very difficult for any new people to get into the industry - hardly surprising there is a shortage of computer personnel. My only advice to Tim is that he should have done a sandwich course to get the necessary experience.

As for S Lyle's comments (*Express* 31), I would point out that the HND in Computer Studies is designed to lead to a job as either an applications programmer or a systems analyst (at trainee level). I would say it is far easier for someone with no experience to get a job operating a computer rather than programming one.
David Rollinson, Derby

● ***Thanks for your comments. We're planning a feature on jobs in computing in the near future.***

TO BE OR NOT TO BXFG4;K%

If you had an infinite number of monkeys and an infinite number of computers they would eventually create a computer program; and a lot of rubbish. Database Publications have taken this gibberish and called it *Mini Office Professional Plus* for the PCW.

The spelling checker can't be used within the wordprocessor (the instruction book says it can). You have to save the document, exit the wp, load the spelling checker, re-load the document then check the spelling.

The thesaurus appears to have come from the other side of the pond. It

SALAD DAYS

support your switch to non-chlorine bleached paper, but I wonder whether you really meant to say "Green" with a capital G at the end of the paragraph (Comment, *Express* 33). I hope you didn't, because this implies a recommendation to your readers to support the Green Party.
John Leach, Tetbury, Glos.

● ***The capital is intentional, but refers to 'Green' as a general movement rather than the political party (which is also spelt with a G) or the colour of jealousy, envy, salad and old pound notes (which is not).***

RECYCLING PROFICIENCY?

Glossy paper is yet another example of something we don't really need that has a detrimental effect on the environment. Shame you can't use recycled paper, though. Is it really that much more expensive?...
David Rollinson, Derby

● ***It costs 30% more than our current paper, is much worse quality and – perversely – worse ecologically, because it is heavily chlorine bleached to remove the ink. Paper pulp manufacturers grow their own trees specifically, and ours plant faster than they fell – they'd be out of business otherwise. I'm happy with our current paper as a reasonable balance between quality and environmental sense.***

Express is not made from rainforests, has no artificial flavourings, contains no lead additives or CFC propellants, and is not tested on animals. You can buy Express with a clear conscience.

• *New Computer Express* is not tested on animals. The guinea pigs here are reading it of their own free will

doesn't recognise 'inject' but allows 'shoot up', there's no information on 'colour' but it recognises 'color'. Words can only be entered from the keyboard.

You can't convert files between *Protext, LocoScript, Mini Office* and ASCII; every document I've tried seems to start life as a *Protext* file regardless of what it really is.

After one and a half hours the anagram cracker was unable to convert 'carthorse' to 'orchestra'. I also gave up on the crossword cracker after the same amount of time ??F?W?R? still hadn't been converted to 'software'.

Apathy has prevailed so I haven't tried the other modules.

On the plus side, the box it came in is sturdy and you can always re-use the jiffy bag (probably to send the thing back when you ask for a refund).

I wonder if good old faithful Locomotive software will ever do a thesaurus.

Brian Smith, Plymouth, Devon

● ***Well (see News this week) Database have recalled the version of Mini Office Plus you have and assure us that 'all the bugs have been fixed'. I bet you're stuck with the American thesaurus though, and this infernal 'automobile' and 'movie' and 'elevator' nonsense.***

Locomotive's Howard Fisher said they aren't planning a LocoSaurus yet, but they'd be happy to consider one if they receive lots of requests. Write to them at Locomotive Software, Allen Court, Dorking RH4 1YL.

DIGITISERS

I read with much interest the news concerning Alpha's new graphics digitiser (*Computer-eyes*) for the Atari ST (*Express*. 32). If at all possible, could you please give me details of an address to where I can write for more information. What are the chances of this new product being at the June Atari show?

Also, what are your views on the A-Magic *Turbo Dizer*? Is it the best digitiser currently available for the ST?

Warren Jackson, Manchester

● ***All we have is the American phone number which we printed in Express, I'm afraid! The product wasn't at the Atari show. As for A-Magic, we prefer Rombo's which is cheaper and in real time.***

MONEY IN THE... BLANK

I read with interest a letter from an ST-owning reader recently about incompatibility problems with his disk drive and recent software releases.

I too have encountered similar problems but with my C64 and 1570 drive and copies of US Gold's *Hillsfar* game. I found upon loading (if successful) the computer locked up if attempting to access further data from the disk resulting in the drive going into continuous read mode. The screen would remain blank.

I contacted US Gold who were aware of a compatability problem between the game and the 1541 drive and had re-written the loading routines to suit. The product manager Bob Maylor even duplicated a copy of the game off a master copy for me using, he said, a 1570 drive but still total failure. After four failed copies, I was forced to admit defeat and request a refund. US Gold were very understanding and returned my money without argument.

Incidentally, I have had no such problem with prior or recently purchased disk based software from a variety of companies including *Pools of Radiance* from US Gold.

Phillip James, Melksham, Wilts

● ***Another illustration of programmers and machine manufacturers not being on quite the same wavelength – machine manufacturers not detailing new drive specs and programmers trying to push existing drives past their limits of tolerance in copy protection routines or whatever.***

• **Merde! Ce disque est corrompu! Allons au bistro...**

DISKUSTING!

I had to write and thank Jerry Glenwright for the great little article, Disk Dossier (*Express* 32), but the protect and survive part can't be software house rules in France. Take a look at page 24 of the same issue – disks left all over an Atari and in front of a monitor, both heat and radiation sources in one. It could be that they write programs immune to both the above. While on the subject, other disk sizes are available for lesser known micros eg 2.8 inch Quick disks for the MSX and SHARP MZ-700. The latter of these is one I own and I just wanted to give it a mention.

Paul Trainer, Leeds, West Yorkshire

● ***Gallic nonchalance, I suppose. Maybe Coktel Vision (for it is they, makers of Emmanuelle) are too busy with the real thing to worry about what's happening to their graphics disks.***

MAIL NON-CHAUVINISM

With regards to the hacker letter (*Express* 32), or at least your reply to the hackers' letter. I work on the AA's database, so if you just like to send me your details (or preferably an old mail-piece) and a snotty letter I will remove you in a nanosecond (no charge!).

As an added bonus if you send me the hacker's details I'll stick him on the mailing list for everything, that should keep him busy for a while.

Neil (the not even a little bit cross man) Duncan, Basingstoke, Hants

● ***Thanks, great stuff. I've sent back the label that says YES! Please remove me from your mailing list, and claim my £5,000 bonus for replying within 14 days.***

SNIPPETS

Fascinating to learn from Ken Mosley (*Express* 33) that crime does pay and that some firms have got their 'just desserts'. Custard pies?

DA Richards, Godalming, Surrey

● ***No – they would leave more egg on the faces of sub-editors.***

AMIGA ITEM

Recently my second-hand Amiga died. I initially tried to claim off my house "contents" insurance to cover the repair, but was told by my insurance company that the Amiga wasn't covered as it hadn't been specifically itemised in my policy – a point that perhaps ought to be brought to the attention of your other readers.

Alan G Smith, Walsall, West Midlands

● ***Hmm. It highlights the risks of buying stuff second-hand too.***

ERE'S A FUNNY STORY...

At my local computer store, a man asked if he could have a box of 10 3.5-inch disks for his Atari ST. The assistant replied "sounds like a fair swap to me!"

Matthew Wood, Croydon, Surrey

● ***And my mother is having her teeth out and a fitted carpet put in.***

...BUT NOT THAT FUNNY

I have heard a rumour that for issue 1 of *ST Format*, an Atari ST was going to be taped to the cover. But it was found that the cover price would have to be raised by two pounds. Is this true?

Matthew Wood, Croydon, Surrey (again)

PS Me an Amiga owner? But that's incredible. Are you psychic?

● ***No, but I'm in two minds as to whether I'm schizophrenic or not.***

• **Before your machine goes west, check your insurance, says Philip James**

Poor Oric, I knew him

MYSTERY PRIZE WINNER

You gave the person who wanted to obtain Oric software the address of the International Oric User Group (*Express* 32). Unfortunately, Gary Ramsey who ran the IOUG was forced to wind it up in February this year due to other commitments.

However, all is not lost. The excellent *Oric User Monthly* edited and distributed by **Robert Cook, 10 Thompson Avenue, King's Norton, Birmingham B38 8YD** is still going strong, and **Allan Whitaker HGC (mail order), 8 Staley Road, Stalybridge, Cheshire, SK1 3DT** (061 303 7369) runs a very helpful mail order service.

He stocks software (over 120 titles), books, disks, hardware and much more.

Christopher Hearn, Tring, Herts

● ***One of the nicest things about Express is when people write in to help others with information like this that we could never get ourselves.***

Thanks very much, Christopher – I'm sure Oric users out there will be grateful. We're sending you a piece of mystery Oric software as the sender of this week's prize letter.

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PICKING UP THE PC'S

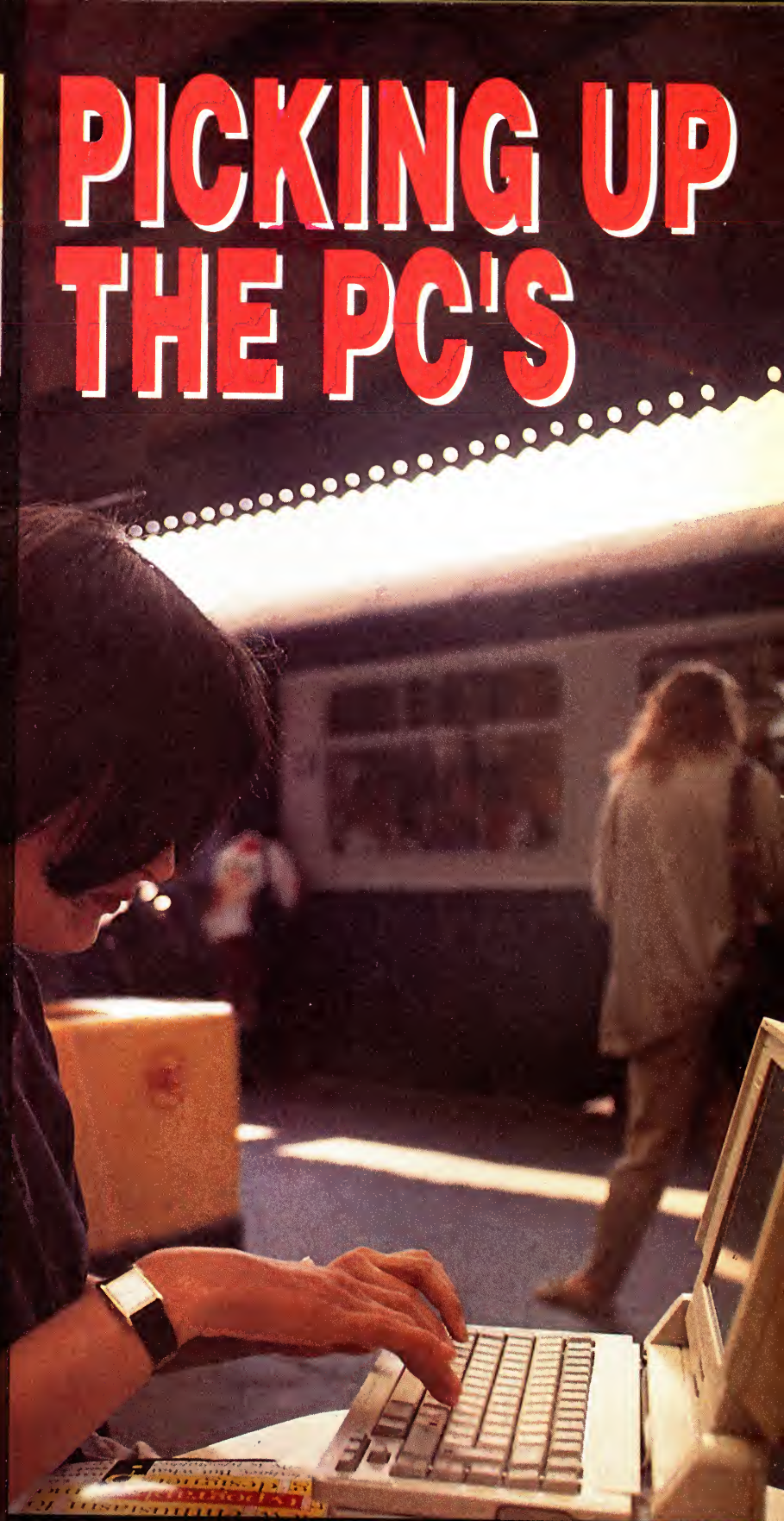
The Secretary: Your boss is giving you hassle over arriving late for work. But it's not your fault that public transport keeps on striking. So you're given a PC portable to make up any company time lost on your extended travels to work. Something like the Sharp PC 4641 is great. You can word-process with ease thanks to the excellent screen display and keyboard. The only thing is you've had to start body-building lessons to cope with the strain of carrying it all around.

The Yuppie: Like the Filofax and Vodaphone before, you steam straight in and buy the best around. You go for the state of the art Compaq SLT/286; you've got yourself a deck which really blows away that Z88 thingy. The Compaq is one thing that won't be relegated to the cupboard, along with the Filofax, Cellnet portable phone, that piccy bought from that trendy studio in Chelsea, etc.

The Surveyor: You're always on the job site. You handle loads of data through the day. You need a low cost, low power PC portable to store all this information for you. The Schnieder Portable AT would be difficult to use, for it only works from the mains... or is this why you always see people sneaking off to the Portakabin at the back of the building site.

The Salesperson: You're always out on the road, meeting clients and making deals. You need access to information – and you need it now! This is where a battery powered PC portable could come in. With a machine such as Panasonic FT-2H, you could use a database, spreedsheet, or word-processor. Back at HQ, transfer sales data to floppy – ready for the boss to scrutinise at their leisure on their desktop.

Shoes (excepting the wellies) by Russel and Bromley



Ever needed to use your PC when miles away from the office? Then a PC portable could be the answer. But just how portable are they? Are they just an excuse to play Tetris *on the 7:38 to Fenchurch Street? Which one is best suited to your needs?*

To help you decide, here follows the definitive Express *round-up of 10 PC compatible portable micros covering every aspect of PC computing on the move. Everybody on* Express *Editorial tested these decks out. Rik Haynes recounts their comments and verdicts* ➤

COMPAQ SLT/286

Processor: 12 MHz 80286 • Memory: 640K • Storage: Single 1.44Mb Floppy + 20Mb or 40Mb Hard Disk • Display: Backlit VGA LCD • Price: £3,395 ex VAT 20Mb model – £3,895 ex VAT 40Mb model • Manufacturer: Compaq on 01 904 8860

Rob Ainsley: "Bliss! A quiet, sound, firm keyboard which is wafer thin and has a lovely touch. Screen is clear with contrast and brightness adjustable to make it crystal clear. You could almost take this into the library with you and not disturb anyone. Three grand, but the best of the up-market portables. Really well worth it."

Andy Storer: "Deservedly worth the title of Rolls Royce of the portables, this should be called the Compaq Corniche. A detachable keyboard is a unique inclusion which will free the user to read the wonderfully clear screen from a relaxed position. All you might want from a portable - and also the smallest of the ones we've covered."

Jerry Glenwright: "Absolutely wonderful! It's small and truly portable. The keyboard is perfect for long sessions with the word processor and best of all, it's detachable. Screen display is bright, sharp and highly readable. A little expensive, but then you pays your money etc."

Angela Neal: "Brill. I carried it to the station and back for the cover photograph and didn't feel silly in the least.The removable keyboard is a great feature and means that you can lounge and still compute. I thought the display was the only marginally poor point but to be fair it was a very sunny day and the battery was running low."

Rod Lawton: "The keyboard is one of the best, being light, positive and accurate. It is also extremely slim. The white on black (dark grey) display is about the best we've seen on a portable.

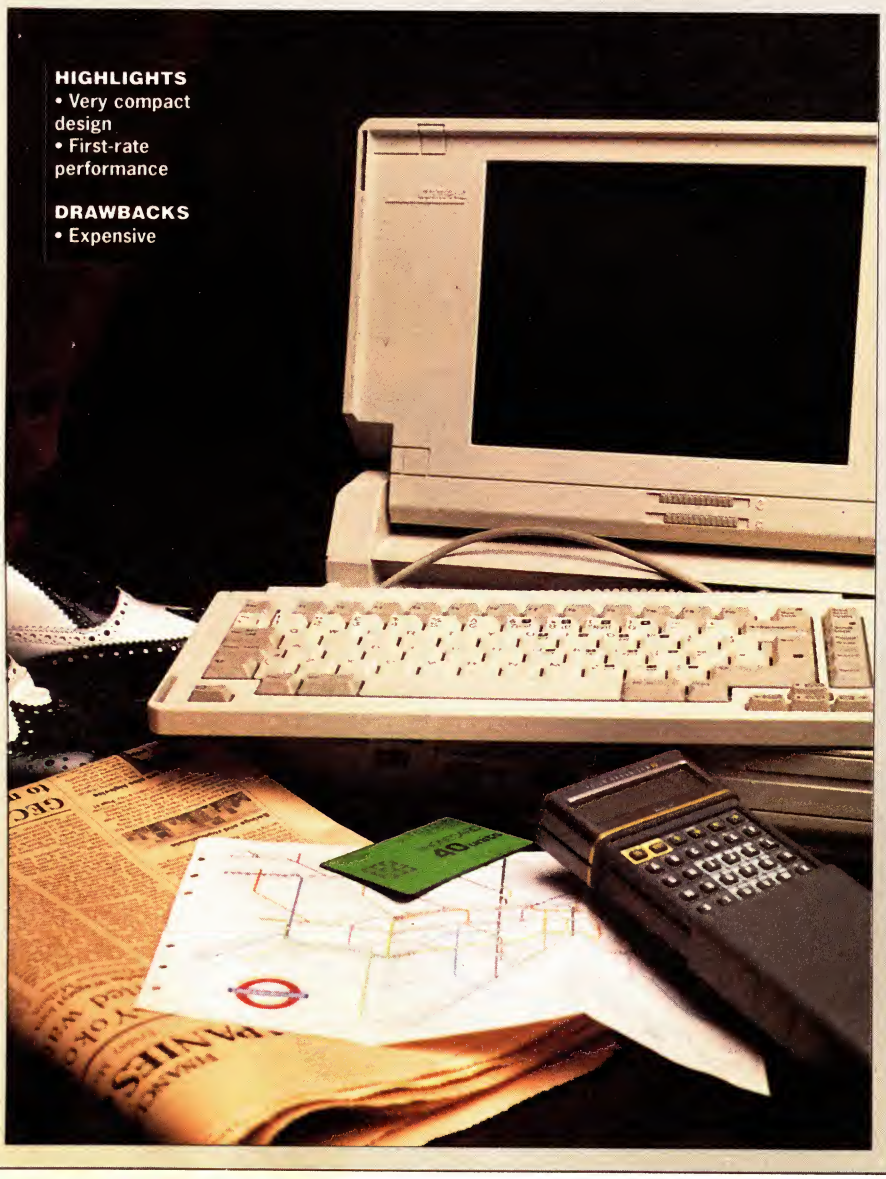
The machine is virtually silent – even of hard disk noise. Disk access – both hard and soft – is extremely quiet too. Construction is first rate, and the Compaq could be carried around as easily as any of the other portables – more easily, perhaps, since it is lighter than most, and actually takes up less space."

BENCHMARKS

CPU Speed Test... 11.6 MHz AT... 6.2 times faster than an XT • Hard Disk Data Transfer Rate... 262.5 KB/Sec • Average Seek Time... 24.4 MS • Track-Track Seek Time... 5.6 MS

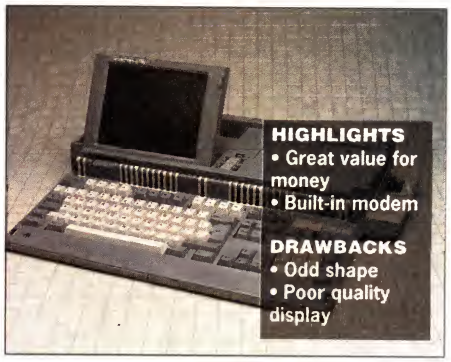
EXPRESS VERDICT ★★★★★

Our favourite portable on the market, the Compaq SLT/286's superlative design is backed up by an impressive array of features and specifications. You must have a look at one before making any final decisions.●



AMSTRAD PPC640

Processor: 8 MHz 8086 • Memory: 640K • Storage: Dual 720K Floppies • Display: CGA LCD • Price: £599 ex VAT • Manufacturer: Amstrad on 0277 228888



RL: "Bulky and cheap-feeling it may be, but it offers two drives. It's questionable, with modern floppy storage capacity, if the majority of users really need a hard disk. No danger of a hard disk head crash and confidential information can be stored independently of the computer. It's pretty fast too.

Setting aside any prejudices relating to the Amstrad name and the machine's apparently downmarket construction, for the money, it is an excellent package."

RA: "It's all been said before: keyboard that clanks like a dustcart returning full to the depot, screen that requires Steve Davis to judge the one angle out of a thousand at which it can be read, and why did they put the handle there? Definitely better on the back seat of your Sierra than on the 125 to work. But at the price it does everything you want. Typical Amstrad really – not the most craftsmanlike product, but great value."

AS: "The kind of portable you'd take aboard Thunderbird 2 - it looks like it could withstand being run over by a planet. Ironically, it's probably the flimsiest of the lot. Plastic is the state of the art here – the screen is appalling, the keyboard sticky and the look sickly. Cheap prices don't always mean bargains."

JG: "When first launched, the PPC640 with V22bis 2400 baud modem was worth the price for the modem alone. Unfortunately, an excellent modem does not a good computer make, and as for putting the handle at one end, try walking up a flight of stairs!."

BENCHMARKS

CPU Speed Test... AT 5.1 MHz... 2.6 Times faster than an XT

EXPRESS VERDICT ★★★

Somewhat on the cheap and nasty side, no-one can deny the PPC640's offering of great value for money, especially considering its built-in modem.●

BULL PC AP-L

Processor: 12 MHz 80286 • Memory: 1Mb • Storage: Single 1.44Mb Floppy + 20Mb or 40Mb Hard Disk • Display: Backlit 640x400 CGA LCD • Price: £3,195 ex VAT 20Mb model – £3,795 ex VAT 40Mb model • Manufacturer: Bull on 01 568 9191

AN: "Not too cool to be seen around with - it is beige with blue trim and is a little on the weighty side. One thing in its favour is the screen which is clear and easy to read from any angle. The keyboard feels good but has markings only readable by a midget."

JG: "Very nice construction - closing the screen is akin to slamming the door of an expensive car, satisfying clunk. The keyboard is a little treasure. Well made, thoughtful if unspectacular."

RA: "Fine. Good keyboard response, clear summery blue screen, nicely balanced design, easy to carry round – unspectacular but well put together. Two and a half grand's worth, and it shows."

BENCHMARKS

CPU Speed Test... AT 7.5 MHz... 3.8 times faster than

an XT • Hard Disk Data Transfer Rate... 217 KB/Sec • Average Seek Time... 28.8 ms • Track-Track Seek Time... 7.5 ms

EXPRESS VERDICT ★★★★

Basically a re-badged version of the popular Zenith SuperSport 286, the AP-L is well made, but its processor lacks speed. Perhaps this line's starting to feel its age?

NEC PowerMate Portable SX

Processor: 16 MHz 80386 • Memory: 2Mb • Storage: Single 1.44Mb Floppy + 42Mb Hard Disk • Display: Gas Plasma VGA • Price: £3,995 ex VAT • Manufacturer: NEC on 01 993 8111

JG: "Its BIG! The word luggable must've been invented to describe this machine. And just who needs the power of a 386 whilst sitting on the express to Bognor Regis? If you want a big, heavy, unwieldy, 386 luggable this is the one for your – otherwise forget it."

AN: "Don't bother to take any other luggage if you are going anywhere with this machine, make sure you are met off the train and expect to pay excess baggage charges at the airport. Need I say more?"

RA: "Best display of the lot – very clear, good contrast – I'm rapidly getting used to this amber colour. Word processing is a pleasure. Keyboard OK but it clicks like a geiger counter outside Sellafield. Not quite as heavy as it looks, but looks like it weighs a ton ."

RL: "This machine is fast. 'Portable' is about the only bone of contention here, as the NEC is Big – and the weight matches its size. However, the keyboard is superb – about the best of all those tried, while hard and floppy disk is incredibly fast, to go with the processor speed. The keyboard separates entirely from the main unit, while the gas plasma display is the best of the portables, the orange-on-black characters offering good contrast and fast response."

BENCHMARKS

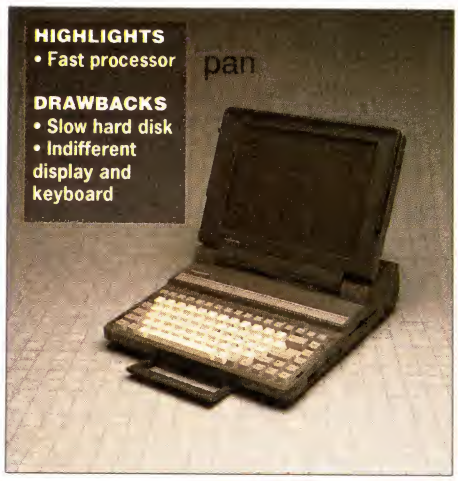
CPU Speed Test... AT 17.2 MHz... 9.1 times faster than an XT • Hard Disk Data Transfer Rate... 245.4 KB/Sec • Average Seek Time... 23.1 ms • Track-Track Seek Time... 6.9 ms

EXPRESS VERDICT ★★★★

Power user stuff or what? First-rate speed, display and keyboard – and you know the one about "if you need to ask the price..."

PANASONIC FT-2H

Processor: 10 MHz 80286 • Memory: 640K • Storage: Single 720K Floppy + 20Mb Hard Disk • Display: Backlit 640x400 CGA LCD • Price: £2,600 ex VAT • Manufacturer: Panasonic on 0753 73181



RA: "Screen appears to have been designed to test the human eye's ability to discern imperceptibly close shades of grey. Not the sort of thing you want to look at for hours on end. Keyboard rattles; easy on the fingers, but not on the ear. Have we just got a dud machine? I can't believe this is one and a half grand. Like a kit car, its speed will make up for the discomfort for some people, but not for me."

AN: "This machine is light and very fast, however the screen is lousy, programs that run in colour are impossible to see successfully and the keyboard is nothing to get excited about."

RL: "The built-in hard drive and lead-acid (!) accumulator can share the blame for the weight, but taking its toll of battery power is the LCD screen's backlighting. In good lighting the Panasonic's blue/black-on-yellow display is reasonably OK, though in strong light a flashing cursor can disappear entirely. In only adequately lit rooms the backlight becomes a must.

The keyboard is very light and 'clicky', but accurate too. Maybe just loud enough to annoy fellow passengers on the train. The construction of the machine as a whole is first-class. Even so, the substantial weight and thin carrying handle of this machine class it pretty firmly among the 'transportables' rather than the 'laptops'."

JG: "The screen is almost illegible. Trying to read the drive speed test figures was very difficult and using this machine with a word processor such as WordStar is next to impossible - you can't see the cursor! The keyboard feels very dead and very cheap. The one consolation is that the machine is very fast, but then, if you can't type anything into it or read anything from the screen, speed isn't going to be of much use to you. Save your money."

BENCHMARKS

CPU Speed Test... AT 13 MHz... 6.9 times faster than an XT • Hard Disk Data Transfer Rate... 21.1 KB/Sec • Average Seek Time... 81.1 ms • Track-Track Seek Time... 23.9 ms

EXPRESS VERDICT ★★★

FT-2H's fast processor speed is badly let down by its slow Hard Disk. Quibbles over display and keyboard make it difficult to recommend.

SCHNEIDER PORTABLE AT

Processor: 8 MHz 80286 • Memory: 640K • Storage: Single 720K Floppy + 20Mb Hard Disk • Display: Gas Plasma 640x400 CGA • Price: £1,998 ex VAT • Manufacturer: Schneider on 0604 766572

RA: "What's this display made of? Can it really be the same as the Toshiba? Trying to read text on screen is like watching someone juggle with ten thousand oranges. The keyboard is nice and bouncy and fine for touch typing – just as well as you'll have no eyesight left after staring at the display for two hours."

AS: "A great little performer with a fast keyboard and average display coming in at an affordable price. As such, the screen can't be adjusted for brightness or contrast and access times aren't top rate but the unit won't have you breaking your back lugging it around."

JG: "Dreadful screen display, another one of those horrendous orange burn-outs. If you want to line the pockets of your optician then word process on this machine for a while. The keyboard feels very cheap and shallow. Lots of harsh clicking but no real response. OK, it's cheap, but if it's unusable what's the point?"

RL: "The machine can only be used from the mains. This drawback does have other advantages though, in that the machine is lighter, more compact and tidier. It's this general tidiness which is the Schneider's most obvious feature. The keyboard itself is one of the best. The keys are very quiet, well-weighted and precise. Not so quiet, however, is the hard drive. This whines away in the background fairly loudly. As a whole it's extremely well-constructed, with a solid, tight feel. A very classy machine indeed."

BENCHMARKS

CPU Speed Test... AT 8 MHz... 4.1 times faster than an XT • Hard Disk Data Transfer Rate... 126.2 KB/Sec • Average Seek Time... 67.6 ms • Track-Track Seek Time... 21.2 ms

EXPRESS VERDICT ★★★

Good all round performance and price, except for the horrible display.

SHARP PC 4600

Processor: 10 MHz V40 • Memory: 640K • Storage: Single 720K Floppy + 40Mb Hard Disk ➤

• Display: Backlit CGA 640x400 LCD • Price: £2,195 ex VAT • Manufacturer: Sharp on 061 205 2333

AS: "An impressive machine at a lost cost for its price performance. A very responsive keyboard, clear screen and relatively light weight make it a strong contender in the pick of the portables. It's also a decent off-matt black colour which increases it pose value ten fold. A great deck to wear sunglasses to."

RA: "A lovely machine. Nice bouncy keyboard, comfortable even after hours of typing, like tartan track compared to the Amstrad's cinders. Screen is fine, there's a big 40Mb hard disk, you don't need female Russian shot putters to carry it for you and it even looks smart. Excellent value. Can I have one on expenses?"

RL: "Attractive design, light weight and an excellent (blue on white) display combine to give an excellent little machine. Very good display. Keyboard is nothing special, but is well above the quality of the budget machines, being positive and accurate, if a little heavy. The built-in hard disk is quiet enough to fool you into thinking there isn't one at first! Not as eerily silent as the Compaq's, but a close second."

JG: "Fast, sleek and powerful this is the machine for the corporate power user (whoever they may be!). Incorporating a fast 40Mb hard drive, very usable keyboard and legible screen – really worth the money."

BENCHMARKS

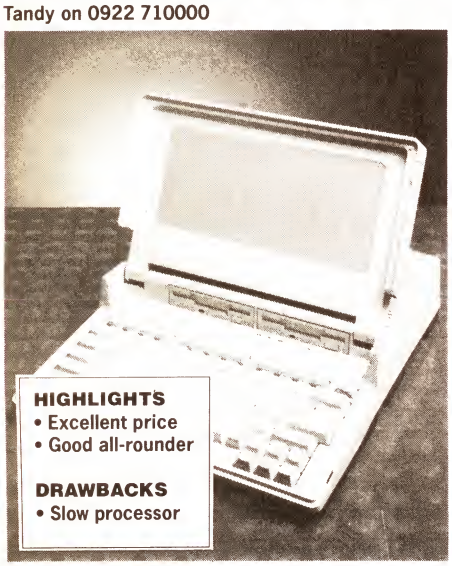
CPU Speed Test... AT 4.6 MHz... 2.3 times faster than an XT • Hard Disk Data Transfer Rate... 240.2 KB/Sec • Average Seek Time... 47 ms • Track-Track Seek Time... 9.1 ms

EXPRESS VERDICT ★★★★

Great performance and specification at low cost, the PC 4641 should be in the top three on your shopping list.●

TANDY 1400

Processor: 7.16 MHz V20 • Memory: 768K • Storage: Dual 720K Floppies • Display: Backlit CGA LCD • Price: £795 ex VAT • Manufacturer: Tandy on 0922 710000



HIGHLIGHTS
• Excellent price
• Good all-rounder

DRAWBACKS
• Slow processor

JG: "Comparatively light with a nice keyboard and clear (although undersized) screen, the Tandy is a usable portable. I like the disk drives set into the front of the case instead of the more usual side mounting. Slightly overpriced when compared to the PPC640 with built-in V22bis modem, it is nonetheless a super machine."

RL: "No hard disk, but two 3.5 inch floppy drives. Initial impressions are mixed on opening, as the design is neat and compact but build quality and general finish are indifferent. The keyboard is quiet, but feels heavy and not terribly positive. Use it for any length of time though, and you find the keyboard is, in fact, rather good. The display is one of the best. Power is supplied either by mains adaptor or lead-acid accumulator, and since the battery does not have to power a hard disk, use away from the office is quite feasible. Combine this with only moderate (for its class) weight and generally compact, tidy design, the Tandy can double as a reasonable laptop."

RA: "Yes, a nice machine, comfortable to type at for long periods and easily carried. Good clear display and looks stylish too. Space bar a bit sticky: typing quickly means you runthewordstogether. I'd think twice about paying £800 for any computer, but this is worth it. If the company's paying, put me down for one."

AS: "It seems fast enough in the load and save departments, and the screen display is clear too but nothing spectacular. The keyboard response is adequate - all in all a compact little number worth the dough."

BENCHMARKS

CPU Speed Test... AT 3.0 MHz... 1.5 times faster than an XT

EXPRESS VERDICT ★★★½

The recent price drop of £200 has made the 1400 even more of an attractive purchase.●

TOSHIBA T3200

Processor: 12 MHz 80286 • Memory: 1Mb • Storage: Single 1.44Mb Floppy + 40Mb Hard Disk • Display: Gas Plasma EGA • Price: £3,795 ex VAT • Manufacturer: Toshiba on 0932 841600

RA: "A machine that grows on you as you use it. The amber gas plasma screen is odd at first but it's bright and very clear. Keyboard is comfortable and keys feel sound. Impressive, but I'd be put off by the price."

AN: "Looks like a real monster, I couldn't contemplate carrying this machine very far. The screen fails miserably - after a few hours of looking at an orange display I think most people would feel like vomiting. The keyboard is chunky and angular but if you don't mind that it works alright."

JG: "Hate it! The keyboard is impossible for touch typing as the keys have a strange shape - particularly the return key. I kept hitting other keys in its place. Screen display? Absolutely awful, a kind of dreadful orange colour that had my eyes turning inside out after half an hour of typing. The machine is large, heavy and clunky and has nothing to recommend it - give it a miss."

BENCHMARKS

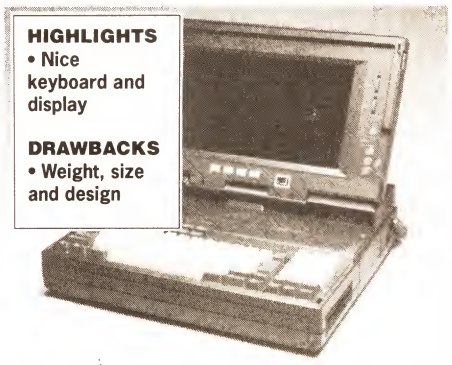
CPU Speed Test... AT 11.7 MHz... 6.3 times faster than an XT • We couldn't get the Hard Disk benchtest programs to display their results due to the screen display

EXPRESS VERDICT ★★★

Part of the extensive range of top quality portables, this Tosh left us with mixed feelings over it's display, weight and price. However, its still a high-end micro with a lot of specs packed under the lid, which unfortunately comes with a price to match.●

WALTERS LP-3300

Processor: 12 MHz 80286 • Memory: 1Mb • Storage: Single 1.44Mb Floppy + 20Mb Hard Disk • Display: Backlit EGA LCD • Price: £2,020 ex VAT • Manufacturer: Walters on 0494 32751



HIGHLIGHTS
• Nice keyboard and display

DRAWBACKS
• Weight, size and design

RA: "Hmm; didn't impress me. Very heavy – one of those miniature suitcase trolleys wouldn't go amiss to drag it to your hotel room. Keyboard: OK, but a vague feeling of looseness reminiscent of moribund milk teeth. Display: excellent. Easy on the eye, invertible and clear. A comfortable machine to use, but really worth it?"

AS: "Though a little luggable, a solid portable with a great screen that allows you to invert and scroll your text at will. The keyboard is precise enough - perhaps a little on the bouncy side of responsive - but this is made up for by the layout and all round clarity of design. The accent here is on large format display and at the spec and price is well worth a look."

JG: "Walters have a big share of the network PC terminal market with its incredibly cheap PC compatible work stations and as such the name is well known in the industry. This machine represents Walters initial foray into the portable computer market - and they've done themselves proud. Screen: excellent. Keyboard: wonderful. The drive is sited at the front of the machine, albeit at the side, it's fast and powerful and there's even a battery strength indicator below the screen. Its cheap but reasonably put together - a good machine worth every consideration."

BENCHMARKS

CPU Speed Test... AT 6 MHz... 3 times faster than an XT • Hard Disk Data Transfer Rate... 132.9 KB/Sec • Average Seek Time... 69.2 ms • Track-Track Seek Time... 21.5 ms

EXPRESS VERDICT ★★★

The weight and design of this machine didn't impress us, but the solid performance made up for these deficiencies.●

HIGHLIGHTS
• Top notch specs

DRAWBACKS
• Weird display

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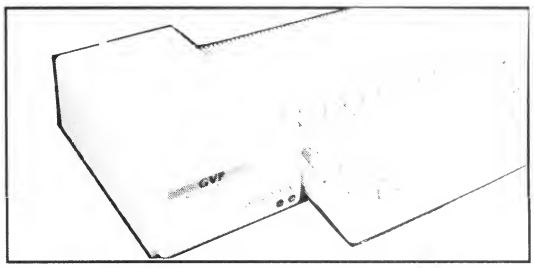

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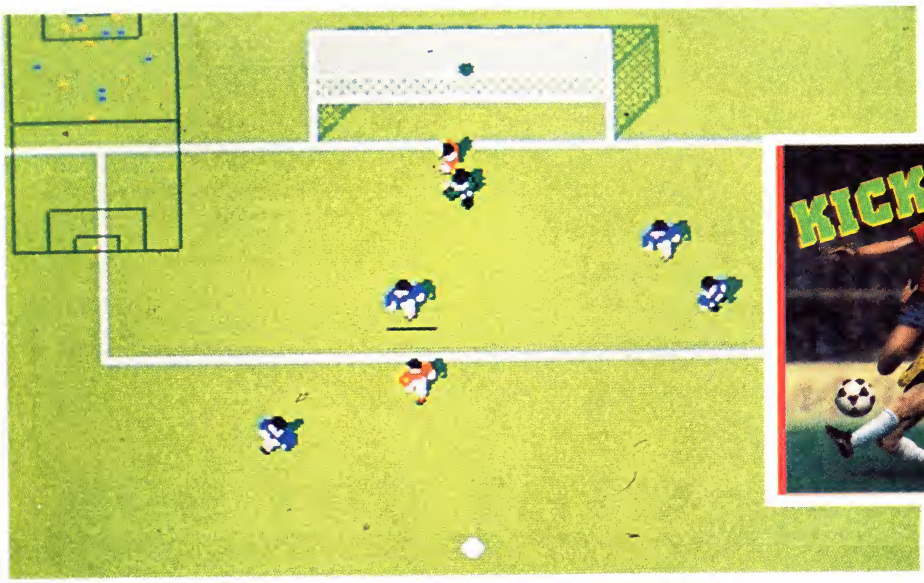
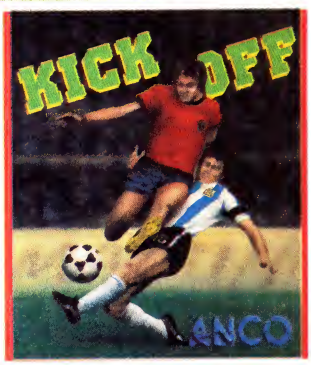


In our review we gave both ST and Amiga versions of *Kick Off* five stars – and Express five star ratings are only given to the best games. It would be worth £25 of anyone's money, preferably someone else's, but you can win a copy for your 16-bit free in our brain-teasing competition!

All you have to do is answer these three simple questions. The first forty correct entries drawn out of the hat on July 10th will win a copy of the game, so remember to tell us your name, address, *and machine!*

But we also want you to give us something! As well as the answers, tell us what you'd like to see us do a feature on. Recently we've done Computer Auctions, Repairs, Health Hazards, Samplers, Word Processors, the Price of Software... what would *you* like to read about?

Send your entries on a postcard to *Kick Off Competition, New Computer Express, 4 Queen St, Bath BA1 1EJ.*



QUESTIONS

1. Spell correctly the name of the England striker Gary Lineker.
2. Give a League football team whose name begins and ends with the same letter (as in 'York CitY').
3. The 1971 FA Cup Final, eventually won 2-1 by Arsenal, was 0-0 after 90 minutes. But what was the half-time score?

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Part 10 of the definitive Express guide to computing

N

NAK (T): International control signal used to signify incorrect receipt of data which is being transmitted via some medium between two computers.

NANOSECOND (T): One billionth of a second. Light travels at 186,000 miles per second and one foot per nanosecond. Some of the most powerful computers available at the moment can process a single instruction in the space of a nanosecond – that's one billion instructions per second.

NATIVE LANGUAGE (L): Computer control language peculiar to one brand of machine. For example, Sinclair microcomputers such as the ZX81 and Spectrum had their own hybrid version of the BASIC language.

● BASIC is the first choice as a native language, but all machines accept assembly instructions.

NCR (CO.): American computer manufacturer originally – and still – responsible for cash registers (hence the name National Cash Registers) which turned to the design and marketing of minicomputers in the 60s and 70s. After enjoying considerable popularity the company slipped into relative obscurity with the demise of the minicomputer.

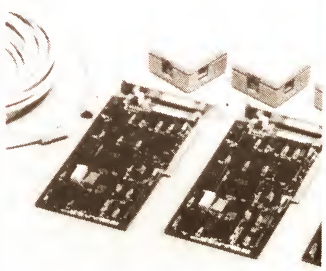
NEAR LETTER QUALITY (T): A phrase used in the description of print quality from dot matrix printers. Near letter quality is supposed to be the closest approximation to text produced by a daisy wheel printer or standard typewriter.

The true quality of NLQ varies considerably from machine to machine. Near letter quality is created by printing a line of text then returning the print head to the beginning of the line, printing the same line again over the top of the original, but with a slight shift to the right. This process emboldens and slightly enlarges each character making clearer and more readable. See also NLQ.

NEBULUS (G): Highly addictive platform game from veteran software house Hewson.

NEMESIS (G): Brilliant horizontally scrolling shoot-em-up, loosely based around the classic Konami Defender game.

NESTING (L): The process of placing one or more program blocks inside each other. The concept is similar to standard algebraic nesting e.g. (Z xY x (X + 3)). Computer programs make much use of nesting with loops and subroutines, where the structure allows complex problems to be solved using a small amount of code.



● The network provides the advantages of the mainframe with the convenience of the micro

NETWORK (T): In earlier days of computing, persons wishing to compute problems, payrolls etc., logged into a mainframe or mini computer via one of twenty or more terminals (screen and keyboard in one unit) attached to the host machine. They were then allotted a portion of the available processor time.

As computers progressed, the desktop or 'microcomputer' became extremely popular. Each user could have their own machine sited conveniently on a desk or even their lap! No more slow computing times as the mainframe's processor struggled to meet the needs of twenty or thirty users all at once. Unfortunately, one of the drawbacks of the micro (and consequently a major advantage of the mainframe and mini) is the inability to access other user's data. To share programs and data, information had to be written to a disk and physically taken to another machine. Each micro had to have its own resources such as a printer, hard drive, etc., in order to be truly useful.

To combat the micro's inherent singularity, manufacturers began to develop methods of connecting them together so that several machines might share a single printer, hard drive, programs and data yet retain the benefits of each user having their own processor.

To achieve this end, one powerful computer with large capacity hard drive is designated as the file server. This is the machine which controls the flow of data through the network, access to the printer and any other peripherals joined to the net.

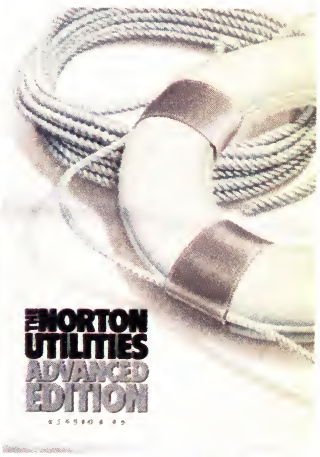
The rest of the machines are connected to the file server using the standard co-axial cable employed by television aerials. Software – invisible to the 'end-user' – running on the file server controls the other machines, allows them to share single programs, data, and all peripherals connected to the system. Users can send messages to each other across the network or refrain from logging-in altogether and remain as a standalone machine. Today, networks are incredibly popular and generally regarded as the way forward for computing. See also LAN, WAN, NOVELL, NODE.

NEURAL NETWORK (T): A network which is designed to emulate the actions of neurons within the brain in order to provide powerful processing abilities and attempt to provide a computer with a semblance of 'intelligence'. Neural networks need no programming to 'learn' situations and may form the basis for future sight and speech recognition systems. They are already able to recognise faces from passport photos and signatures.

NINTENDO (CO.): Console manufacturer who, despite dominating the American and Japanese markets, has yet to make an impact in the UK. Nintendo makes more money per year than the rest of the games software houses in the world put together.

NODE (T): One computer terminal attached to a mainframe, mini or network. The node allows access to the host computer or the rest of the network. See also NETWORK.

NOISE (T): Used to describe interference which can corrupt data travelling across telephone lines, a network etc.



● Used the world over by PC users, Norton's Utilities are an international institution

NORTON PETER (P): Notable computer industry figure responsible for a range of books and programs that explain and make easier the use of the IBM-PC. See also NORTON'S UTILITIES.

NORTON'S UTILITIES (INT): A range of utility programs by well-known IBM-PC expert Peter Norton, which allow the user to retrieve deleted files, organise data on hard disks etc.

NOVAGEN (CO.): Software house originally responsible for a range of software for the Atari 8-bit machines. Novagen's star programmer Paul 'Mercenary' Woakes wrote the infamous Commodore 64 fast loading routines used on the majority of games in the mid 80s. Other notable products from Novagen are Encounter and Damocles.➤

● Consoles are enjoying a massive resurgence in popularity at the moment with many manufacturers vying for sales. Nintendo dominates the American and Japanese markets but remains obscure in the UK

Key: C - computer Co - company DB - database DTP - desktop publishing G - game GG - game genre Gr - graphics Int - integrated software L - languages P - personalities SS - spreadsheets T - tech spec WP - word processor

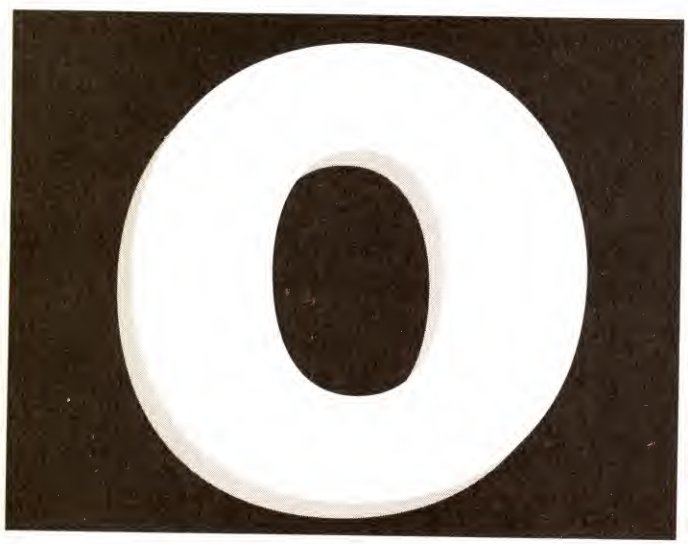
NOVELL (CO.): American company which is the world's largest supplier of local area networks for microcomputers. Novell Netware as the product is known is a collection of adapter cards and programs used by IBM-PCs and compatibles to set up a very efficient network. Netware is currently in version 2.15. See also LAN, NETWORK.

NUMBER CRUNCHING (T): Phrase used to describe the processing of large amounts of data by powerful, fast computers or complex programs.

NYBBLE (T): Half a byte (the standard unit of data within a computer); four bits. See also BYTE.

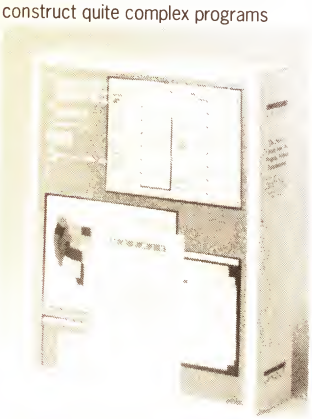
OCEAN (CO.): One of the best British software houses. After many years of moderate success, Ocean hit the big time last Xmas with monster hits Operation Wolf, Robocop (longest ever run at number one in the software charts) and Dragon Ninja.

● Popular software house which is enjoying a run of success after several smash hits at Christmas



OBJECT CODE (L): After compiling a file containing source code (commands written in a high level language such as Pascal or C) the resultant instructions are known as object code and are directly understandable by the computer.

OBJECT ORIENTATED PROGRAMMING SYSTEM(T): OOPS allows computer illiterates to construct quite complex programs



● Create stunning and professional programs without any knowledge of programming

simply by writing a relatively easy to design flowchart. It involves the use of defined modules of code (data objects) which know how to respond to a set of commands provided by a flowchart. The OOPS application then writes the program using the flowchart as a guide.

OCR (T): Optical Character Recognition. The process of passing a page of text through a sensor connected to a computer. The signals from the sensor are then interpreted by software running on the computer and the text is effectively 'read'. Although potentially useful, the applications are limited due to the poor capabilities of the technology.

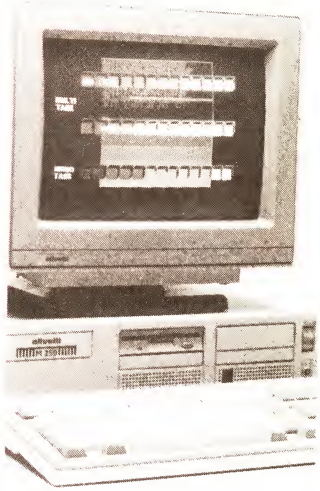
OCTAL (T): Number base eight, used to represent data within a computer (normal counting is done in base 10). Octal is used considerably less than binary and hexadecimal, number bases 2 and 16 respectively. See also BINARY, HEXADECIMAL.

OEM (CO.): Original Equipment Manufacturer i.e. the Taiwanese, Korean etc., company which makes all those computers, televisions hi-fis badged by the high street box-shifters and sold as their own.

OFF-LINE (T): A peripheral which is connected to a computer but switched off and therefore not accessible by the computer. See also ON-LINE.

OLIVETTI (CO.): Italian computer manufacturer originally responsible for a large range of typewriters. After experiencing profit slumps and relative obscurity, the company decided to try its hand at the PC compatible computer market and launched a range of good quality, well made machines which sold well and duly revived the fortunes of the company.

Olivetti became known to a home micro users in the UK when, in the mid 80s, the company bought Acorn (respnsible for the BBC micro) which was about to become bankrupt.

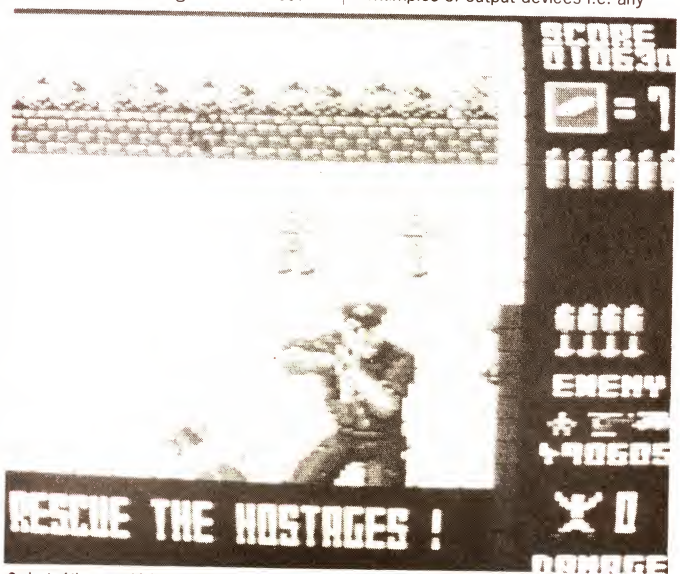


● Just one of a range of well-made, good quality PC compatibles manufactured by Olivetti

ON-LINE (T): Opposite of off-line. A peripheral connected to a computer which is switched on and accessible by the computer. See also OFF-LINE.

OP-CODE (L): Operation instruction used to specify the actions a computer is to perform.

OPERATION WOLF (G): Coin-op conversion of an incredibly addictive combat shoot-em-up which was a number one hit during Christmas '89.



● Just of the many highly successful coin-op conversions available to the discerning home computer user, Operation Wolf stands out from the crowd with its superior gameplay and colourful graphics

OPERATING SYSTEM (T): An operating system is a program running on a computer which acts as an interface between the user and the machine. The operating system performs all the boring tasks necessary to keep the average computer system going, allows the access of disk drives, screens, printers etc., and provides the user with a – relatively – friendly command set with which to instruct the machine.

Two distinct operating system types exist: those which provide machine control via a series of type-in commands, and those which provide icons (little pictures representing some task) which the user simply points at in order to have the instruction performed.

There are many such operating systems available for every computer, some of the more notable examples being MS-DOS/PC-DOS (used on the IBM-PC and its compatibles), UNIX (used on PDP-11, VAX 11/750 etc) and GEM (graphics-based OS used on the Atari ST among others).

OPERATOR (P): Person responsible for the work carried out by a computer. The operator feeds the machine with the necessary programs and data provided by the programmers. Operators as a breed are dying out due to the demise of the mainframe and mini computer in corporate computing.

OPTICAL DISK (T): A form of backing storage which uses removable disk cartridges and a laser which burns holes into them in order to store vast quantities of data. The average disk could store the entire Encyclopaedia Britannica with room to spare. See also HARD DISK, FLOPPY DISK.

OS/2 (OS): Operating system provided by IBM for its new range of personal computers which provides multi-tasking, multi-user capabilities but has, as yet, remained obscure (users have chosen other products). See also OPERATING SYSTEMS.

OUTPUT DEVICE (T): Monitors, printers and card punchers are all examples of output devices i.e. any media with which a computer relays its output to a human user.

OUTRUN (G): Reportedly the biggest selling computer game of all time. Outrun is a superb racing simulation coin-op conversion from US Gold.

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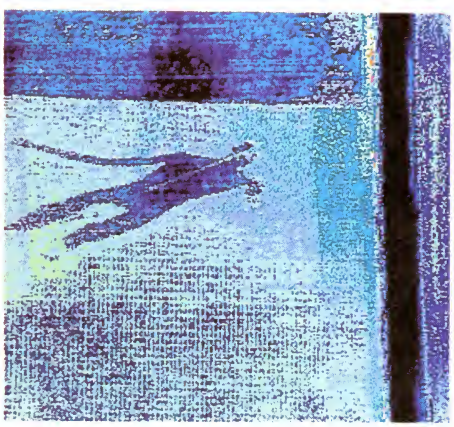
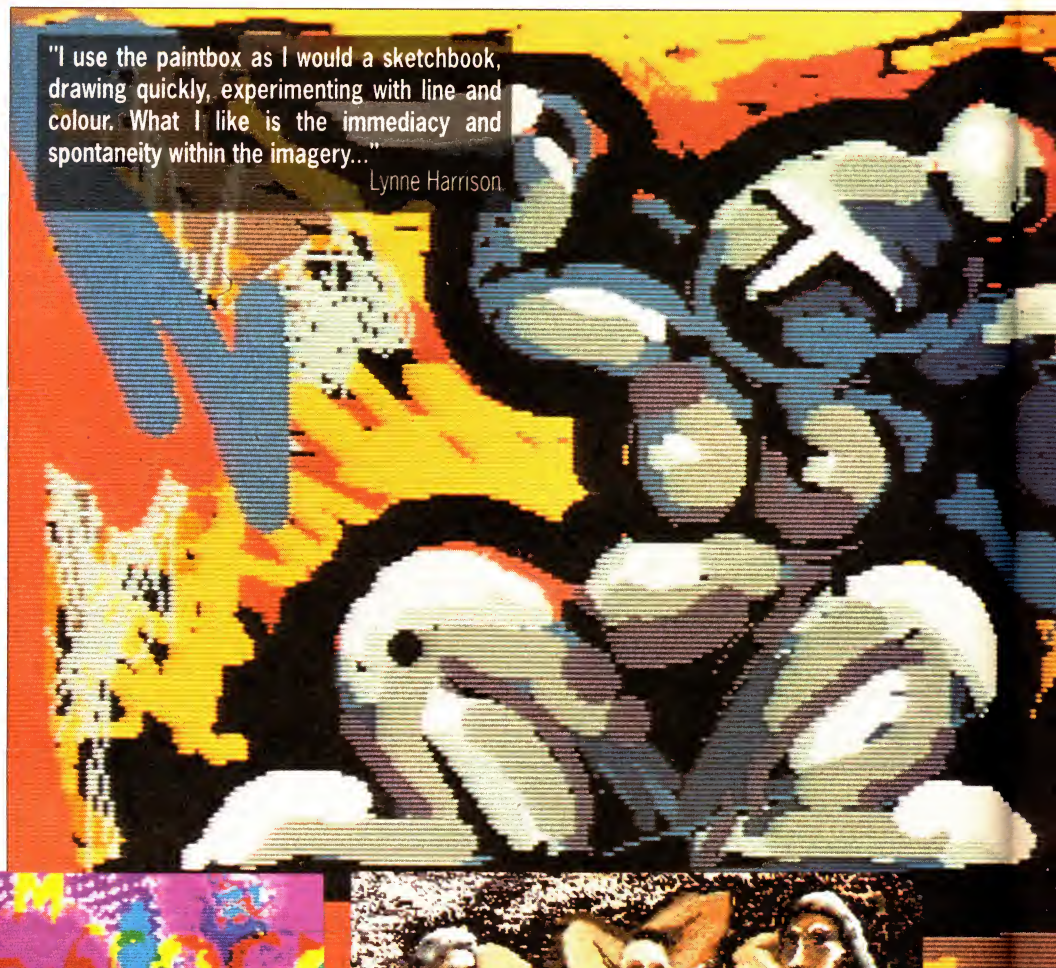
PIXEL PAINTING

Since its first issue, Express has brought you the state of the art in all areas of computing. But what about the art of the state of the art? Andy Storer presents a collage of college work and more Mandelbrot magic.

The instantaneous nature of electronic art, the ability to combine, enlarge, reduce and distort chosen areas of an image at will, gives the pixel painter great scope for experimentation. If you're serious about using a computer to produce works of art then you really need look no further than an Amiga. Just boot up Deluxe Paint III, Photon Paint 2 or Sculpt 4D, and you're away. But how would you fancy working on one full-time and getting a grant and degree in the process? West Surrey College of Art and Design offer such a course - Electronic and Computer Imaging - as part of their Fine Art curriculum. Here's a selection of slides from their latest portfolio.



Mic Atkins

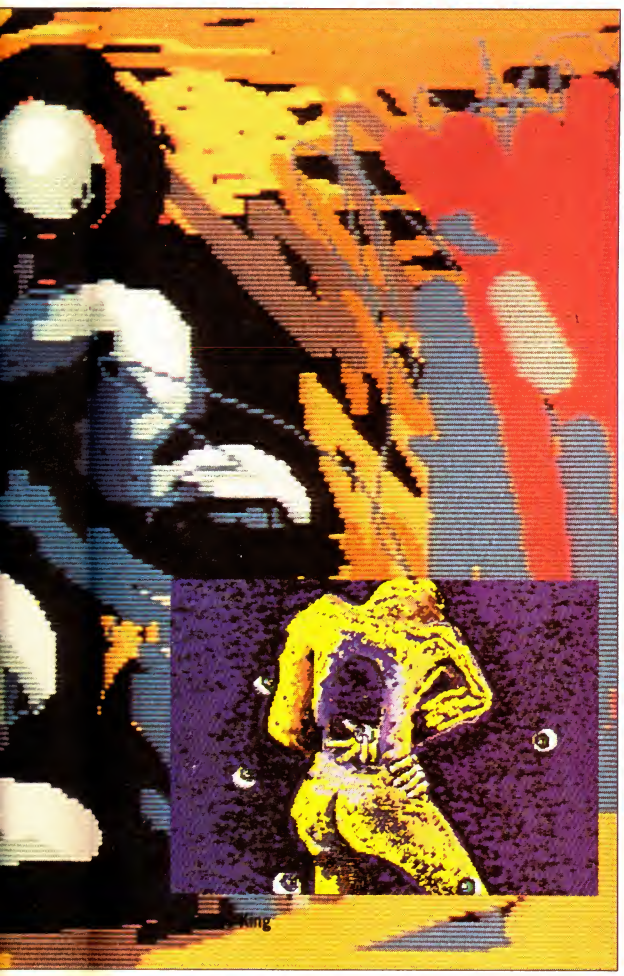


"I use the paintbox as I would a sketchbook, drawing quickly, experimenting with line and colour. What I like is the immediacy and spontaneity within the imagery..." Lynne Harrison

"...The freedom to collage, experiment and change endlessly on the computer screen becomes...an integral part of the finished work. One can find one's own set of 'painterly' Amiga qualities..." David Peace

"I work with Deluxe Paint II. Drawing on a computer is much quicker and more versatile....you're able to work into it without losing the original image" Ndidi Nhagbu

Graham Parry



Isobel Jones

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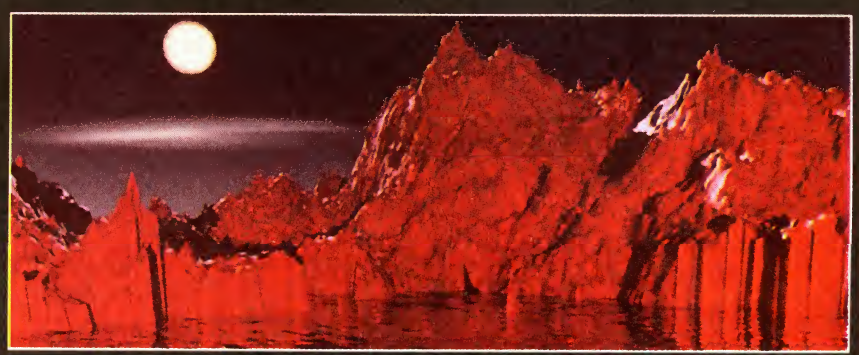
ART OF THE STATES

In issue 28, Express interviewed Professor Benoit Mandelbrot, father of fractals. The images below were produced by Mandelbrot and his collegues, Musgrave and Voss, using Silicon Graphics workstations and up to 20 parallel computers. Greater mathematical precision and heavier number crunching may lead to more hyper-realism than Amigas can produce, but as the final slide shows, this needn't rule out abstraction.



Above and far bottom: F.K.Musgrave and B.B.Mandelbrot 1989

Left and above: R.F. Voss 1988

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Over six

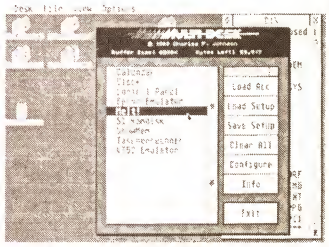
A very useful feature offered by Atari's implementation of GEM is the ability to have a selection of accessories in the Desk menu. These accessories are available all the time from the Desktop; often you can execute accessories while other (well written) GEM programs are running.

Desk accessories are much like normal GEM programs except they are resident in memory. Because of this they can be called up instantly. Sadly only six desk accessories can be loaded into memory at once. If more than six accessories exist on a boot disk, only the first six will load. Changing to a different set of desk accessories is a hassle; the options are setting up a different boot disc for each set of accessories, going through a maze of file copying and renaming, or using an AUTO folder program like *Desk Manager* or *Superboot* to rename accessories for you.

End of hassle is in sight with *MultiDesk*. This wonderful program written by Codehead in the States, and distributed by ISM over here, lets you have an infinite number of accessories loaded. Well, as many as will fit into memory.

So how does it work? *MultiDesk* is an accessory itself and takes up one of the six desk accessory slots. Clicking on it reveals a window into which other accessories – a total of 32 – can be loaded. What's really clever though, is that any one of the accessory slots can be *MultiDesk* itself. In other words you can nest *MultiDesk* and have an unlimited number of accessories at your disposal.

Of course, you have to tell *MultiDesk* which accessories you wish installed the first time – but after that the accessories load automatically at boot. ISM reckons *MultiDesk* is compatible with 99% of all known accessories. Out of the 20 or so that I tried, all worked perfectly. Accessory afficionados don't miss this one! ISM at Grove House, Ventnor RD, Apse Heath, Isle of Wight (0983 867488) can fill you in on the rest. Including the price, which I nearly forgot to mention. £29.95.



• *MultiDesk* proving that it can cope with more than six accessories.

Pixel explosion

It's almost a year since Elmtech first flew the flag for *ParSec* – the extended graphics board for the ST. It seems that *ParSec* really is going to make it now albeit for £799+VAT which is £300 more than originally proposed.

ParSec attaches to the ST and comes with a beefy 32-bit 50KHz Texas Instruments processor capable, it is claimed, of 6.25mips. The ST acts as a dumb terminal when the board is active – so you can't run any Atari programs on the board. That, however, is being worked on. More later. Parsec requires a Multisync Plus monitor or compatible. Elmtech sells a suitable one for £595+VAT!

The basic 4768 board has a 4,096 colour palette (four bit planes), allows a maximum of 16 colours per line, and resolutions up to 1024 by 768. An upgrade to the 8768 will be possible when it's available. The 8768 offers the same resolution and a 16,777,216 colour palette (eight bit planes). Each line can be composed of 256 separate colours.

ParSec isn't much good without software – and in its present form it can't use ST software – which is why Elmtech is bundling an art package, *Da Vinci*, with it. DTP, CAD/CAM, an assembler, various games and a program that allows standard Atari GEM-based software to run on the board are in the pipeline. There's also a spectacular art package with the sort of features you'd never dream of on the ST: mathematical background generation; spacial colour selection; chalk, oil and water colour emulation; 3D airbrush effects; textured surfaces with adjustable brush and pencil pressure.

A genlock and digitiser module are also being developed for the board. The genlock device will enable you to mix and overlay external composite video signals (from the TV or video, say) with the graphic output of *ParSec*. The digitiser module will let you grab video signals and manipulate the results within an art package.

Elmtech is at 6 Witherford Way, Selly Oak, Birmingham, B29 4AX (021 4725719).

Dat bad puddy tat

The Tweety Board from Practical Solutions, which provides your system with stereo sound, is being distributed by the Bath Shack (0225 310300) for £49.95. The board fits inside the ST; although there's no soldering, it's necessary to stick something on top of the existing sound chip. Tweety contains an identical sound processor to the ST – so it doesn't provide the ST with enhanced sound capability; merely stereo sound output.

Wave goodbye

Interval Music Systems (nee Drumware) has updated its popular *GenWave* waveform editor. *GenWave/16* is a stereo waveform editor featuring time domain functions like mouse-drawn digital enveloping, stereo panning, phase inversion and numerous crossfades.

Frequency domain editing features include digital equalisation, high order sample rate conversion and pitch drawing. High resolution spectral analysis is possible on any part of the sound.

Sample playback monitoring via the internal Atari speaker, externally through an optional digital to analogue converter (*Replay 4, Master Sound* and so on), or by triggering notes on the sampler itself. *GenWave/16* supports Akai S1000, Casio FZ series, Ensoniq, Akai S900, and many more. GenWave/16 will also convert waveforms for sending to a sequential Prophet VS.

GenWave is distributed by Hybrid Arts, 24/26 Avenue Mews, London, N10 3NP (01-883 1335). It costs £299.95.

Another format

A quick tip for users of Microsoft *Write* sold by Atari. Files created by *Write* have an identical structure to the Mac versions of *Write* and *Word*. This means you don't have to do any converting when transferring files from one machine to the other. What a pity *Write* on the ST is so slow.

Adrion McHerriot

AMIGA BLITZ

PageStream: Finest Hour for Amiga DTP?

After months of waiting, the Amiga version of what was *Publishing Partner Professional*, is soon to be released. I've been able to have a play with a beta test version and from what I've already seen, *Professional Page* looks set to get a run for its money.

The program boasts some very impressive features such as 3D rotation of boxes, extensive hyphenation and kerning facilities, multiple pages, colour separation (à la *Pro Page*) and some of the best dot-matrix output you've ever feasted your eyes on.

Stateside, The American version of *PageStream* has been available for a number of weeks now. As reported extensively in the American press (check out 'Info' for an in depth review), the US version has more bugs than the Amiga OS and reportedly falls over so often that even the Amiga guru would probably start to feel jealous.

Thankfully, the European version of *PageStream* is being reworked by the UK distributors, Silica Distribution, in an attempt to make the UK version as bug-free as possible. Another complaint aimed at the US version of *PageStream* is the lack of speed when carrying out certain graphic intensive operations, once again this problem is being addressed with Silica's programmers working jointly with SoftLogic in the States, trying to optimise the code to make program execution as fast as possible.

The version I saw was pre-production but Silica seem to have made a damned good job of debugging the program, it didn't crash on me even once.

Amiga Screen Scene

A game well worth looking out for is Ocean's latest, *New Zealand Story*. The game is an accurate conversion of the Japanese cutesy arcade game of the same name. You play the role of a cute little kiwi, whose friends have been kidnapped by a big bad walrus (boo, hiss etc). You must journey through the walrus's kingdom, freeing as many of your cute little buddies as you possibly can while avoiding the walrus's henchmen (hench teddy bears actually) who like nothing better than kiwi soup (that is if the Japanese don't get there first!).

For an exclusive playable demo of *New Zealand Story*, check out the first issue of *Amiga Format* magazine, on sale at a news agent near you on the 13th July. Plug ends.

• *PageStream*: due to give *ProPage* a run for its money

X marks the spot

Music-X is finally here, right? Wrong! After a brief appearance at the recent Commodore car boot sale, er, show, it appears that we still may be forced to wait for the program for at least a few more months. Rumour has it that Activision were none too pleased about Microllusions' appearance at the show, and papers are rumoured to have been filed against both Microllusions and the head of Microllusions' European operation, Philip Taysom.

Ignoble savage

Firebird have finally got around to releasing the Amiga version of their *Savage* game. The most impressive aspect of the game is its music which features what sounds like a blind drunk biker shouting at the top of his voice 'savage!'.

The sound, combined with some excellent graphics, all add up to give a true arcade feel that is so often nonexistent in even arcade conversions. It is also addictive!

A-MAXimise your Amiga

For those of you who haven't heard of *A-Max* (where have you been?), the device is a hardware based Macintosh emulator that allows you to run the vast majority of Mac software on your Amiga – and very impressive it is.

Probably the most complicated aspect of *A-Max* is the initial set-up which involves copying the Mac operating system across onto an *A-Max* disk. This is carried out by using a special 'mini transfer disk' which can be read by both the Mac and the Amiga (note that you'll need access to a Mac in the first place). Once this is achieved, your hybrid Mac should run happily from there on using Macintosh software.

The most impressive thing about A-Max is the amount of support for future Amiga expansion that has been incorporated into the unit. Instead of just providing support for the current range of Amigas, *A-Max* also fully supports the new screen modes offered by the enhanced chip set (ECS) and Commodore's new super-dooper high-res mono monitor, the A2024.

We tested quite a few Mac programs on *A-Max*, and all seemed to work fine apart from a few minor glitches. One thing that did please many was the fact that *A-Max* happily runs Spectrum-Holobyte's Mac version of *Tetris*, which is a favourite of nearly everyone at Future Publishing.

The only negative aspect of *A-Max* is the lack of support for Amiga hard drives, which makes professional use of *A-Max* questionable. Fortunately, plans are afoot to rectify this in a future release. *A-Max* is available for £134 from Entertainments International (0268 541126).

For the definitive review of *A-Max*, check out the first issue of *Amiga Format* magazine, on sale on the 13th of July at all good newsagents (all this plugging of mine is becoming a bad habit! (*Add it to the list – Ed.*)).

Jason Holborn

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PC UPDATE

Moving memories

Having written last week about the problems of using memory between 640K and 1Mb, there's an allied problem for those with more RAM to play with. If you have say 2Mb of memory, you'll probably want to set much of it up as EMS memory, so that your more enlightened applications can make good use of it.

Under normal circumstances you'll find it's only possible to use the 1Mb of RAM between 1Mb and 2Mb. Although you have 384K of memory between 640K and 1M, it sits in a bank not seen by the operating system. You can get a driver to use it as a RAM disk, but what you really want is to be able to incorporate it into the EMS memory map. Why can't you move that physical chunk of memory to a logical position at say 2Mb to 2.384Mb?

Surely some clever brain in the PD or Shareware world must have addressed this problem, I thought, so I rang Steve Lee at Shareware Marketing. In amongst a huge amount of instant info on EMS3, EMS4, the uses of Unix and OS/2, we came to the conclusion that it was difficult to use it for anything other than a RAM disk. Does anybody out there know different?

When is a portable portable?

As you may have read in this column, I recently bought a Zenith Supersport laptop PC. It's a fine machine and has proved to do all I wanted of it. The only real snag is its weight. At 14 pounds or so (6.5kg) with battery pack and power supply - you can't really be without either when you think about it - it's not light.

For those who haven't yet invested, there could be real reasons for hanging on for a few months. Strong rumours have it that both Psion and Cambridge Computers will have lightweight PC-compatible versions of their respective hand-held machines available for an Autumn launch, perhaps for the PC Show (ex PCW).

Psion's is not likely to be based around the Organiser, which has done well for them but may not be the best vehicle for a Toshiba or Zenith laptop replacement. The Z88 sequel is almost there in its present form, but to run DOS software it really has to have an 8088/8086 processor, which may mean its batteries last for even less time than the current model. The environment can't like all those throwaway Duracells, either.

The launch of Atari's Portfolio may have shown the way things are going. It certainly showed some innovative design on the software as well as hardware side. And the wizz-kids who designed it were dropping all kinds of hints about developing the technology further, particularly the screen.

If you can wait until next year you can probably do even better. Zenith sees a potential market for a really light laptop and is said to have a model in the wings for a 1990 launch which will weigh in at under 2lb. Very handy, especially when you consider it will have a 2" 20Mb hard disk inside its case!

Hospice support

A recent press release from GST, makers of *Timeworks DTP* among others, relates how the company has donated a copy of *Manager Professional*, their less well-known database program, to Cambridge Children's Hospice for East Anglia. They've also persuaded Digital Research, who market GST's *Word Plus*, to donate a copy. Big deal, if it wasn't for the fact that GST are also sponsoring an extra nurse for the Hospice at a cost of £12000. Much more like it.

Valerie Kilner (in the foreground in the photo), Major Appeals Co-ordinator at the Hospice is quoted as saying "More staff will be able to use the two computers now, which is a great help." I can't help wondering if this is due to the simplicity of operation of the GST software or because they'll have an extra nurse.

FILES and BUFFERS

Having had a recent problem with a SuperDisk program which required the MS-DOS environment variables FILES and BUFFERS to be increased from their default values, I had a look through my MS-DOS manual to check what they actually do.

The FILES variable simply specifies the number of files that can be open at any time. On a single-tasking system like MS-DOS you would think that this would only ever be 4 or 5. In fact, on database systems which have to refer to many indexes and related files it can be a lot higher than this.

BUFFERS specifies the the number of disk buffers that the system is to open. Disk buffering is something similar to caching, where the PC will write to an area of RAM rather than directly to the disk, whenever it can. Each buffer takes up 512 bytes so for a comparatively small memory allowance, say 15K, you can have a decent set of buffers which will noticeably increase the speed of your machine.

Simon Williams

• A new nurse for the Hospice at Cambridge, thanks to GST

CPC centre

The Lightgun: first hands on review

At last, this very evening, I've managed to get hold of the Virgin/Mastertronic Magnum Lightgun, due for general release in July. So far I can't say I've seen enough to be able to offer a final verdict, but first impressions suggest what Scottish law would term as a "Not Proven" verdict.

On the downside it's going to cost us a fiver more than does the Spectrum version, which strikes me as a bit of a swiz, since the Amstrad edge connector actually has a pin for a light-sensitive device.

The Magnum comes with half a dozen not altogether inspiring games, of which *Operation Wolf* is undoubtedly the pick.

When you load you're faced with a line you fire at to trigger the device. What you probably won't realise, unless you've read this paragraph is that how you respond at this point makes all the difference. At first I just fired any old way, with the result that the software assumed that my gun was pointing at A, when it fact it was pointing about 3mm to the left of A, with predictably unexciting results. Once I'd figured that out, things went fairly well. As I say I've only just taken delivery of the thing, so for a fuller and more informed opinion you'll just have to tune in next week, same time, same page.

Final warning

Those of you who get your copy of *Express* hot off the press may still be able to get an entry in for the CPC Centre competition in which we're giving away five copies of *Pandora*, the machine-code program generator. And even if you don't win you'll receive a voucher worth a fiver off the £30 cost of the program. Quick! Tell me who Pandora was: CPC Centre, NCE, 4 Queen St, Bath BA1 1EJ. Entries must be posted before the end of the month.

I've already had a heartening number of replies, suggesting that I'm not altogether shouting into the void. The lucky winners' names will appear in this column next week.

Carey in tidying shock

This week I've been clearing out the office of the accumulated odds and ends and junk of nigh on four years of *Amstrad Action*. Games were turning up I never even knew existed – did anyone ever play CRL's *Room Ten*? Who now remembers anything of that dusty classic from Piranha *The Astonishing Adventures of Mr Weems and the She Vampires* – other than its title?

Naturally we found lots of duplicate games, but before you write in offering to take them off my hands, I've already made arrangements to hand them over to Oxfam, who have been making appeals for your software (see *Express*, passim). It's my fervent hope that as much software passes the way of *Amstrad Action* again before the CPC finally becomes RIP.

Poke this

Here's a poke for the tape version of Imagine's *Renegade III*, courtesy of Mapperley magician Phil Howard. As it promises it gives you infinite time and lives. To enter it, simply rewind the game tape to the beginning; type in the poke listing and then type RUN and press the Enter key. (Don't use the key marked CTRL or Control, or the poke won't work.) Press the Play key on the cassette deck, then any key on the main keyboard – the spacebar's as good as any. The tape will now play through as normal.

```
1 'renegade III
2 'CPC Centre, Express 34
3 'infinite time + lives
4 '
10 DATA 21,16,BD,36,C3,23
20 DATA 36,0E,23,36,BE,C3
30 DATA a5,99,21,17,BE,22
40 DATA 4f,A6,C3,08,A6,DD
50 DATA 21,b9,a8,11,ab,00
60 DATA CD,48,a8,21,2A,BE
70 DATA 22,62,a9,C3,e3,a8
80 DATA 3E,c9,32,df,4d,af
90 DATA 32,89,2b,c3,b3,64
100 y=0:MEMORY &5000
110 FOR x=&BE00 TO &BE35
120 READ a$:a=VAL("&"+a$)
130 POKE x,a:y=y+a:NEXT
140 IF y<>&181A THEN 170
150 LOAD"renegade
160 CALL &BE00
170 PRINT"data error!" l
```

Licence to enter data

Having been fortunate enough to get a sneak preview showing of the latest James Bond film Licence to Kill, starring that well known cardboard cut-out Timothy Dalton, I was interested to see a fair bit of VDUing going on. And before you go all incredulous on me, no I'm not going to point out that not only did Colin in Eastenders have a CPC, and not only did it once feature on Tomorrow's World, but it's now made an appearance in an 007 epic. Sorry to disappoint. But there is a tenuous kind of connection, because there's a database screen that pops up at one point. And it turns out to be none other than *Masterfile*, from Campbell Systems.

By the way, if you've seen a CPC turning up in an odd place – say in the latest Madonna video, or on the top deck of the Birmingham Outer Circle bus (number 11, and takes hours to arrive), do drop me a line to: Well I Never, CPC Centre, NCE, 4 Queen St, Bath BA1 1EJ.

A pocket of Maltesers

This week I've spent a fair amount of time attempting to master *Firebird 3D Pool*, as promoted by Maltese Joe Barbara (hence the rather limp title to this bit). It's on the slow and unwieldy side, but nonetheless frighteningly addictive.

The game features a novel solution to the old problem of how to present the cue, table and balls in such a way that you're not totally confused. It eliminates the cue! What happens is that the table revolves so that your point of view is the angle of the cue. It works surprisingly well.

Steve Carey

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Steroid	Editors/Sortied Storied/Triodes	0.38 secs
Tom Cruise	Costumier	0.55 secs
I play all the ABC	Alphabetically	0.33 secs

* Times were recorded on an Apricot VXAWS (80286 processor)

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SPEX

Star software

Unless you've been living in a cave for the past year you can't have failed to notice the large amounts of praise heaped on one game in particular by your ST/Amiga owning buddies. I'm talking about *Starglider 2*, a filled 3D graphics extravaganza which they no doubt told you was impossible on any other format save theirs due to the speed, size, look and general terrificness of it all. Well, they were wrong and not for the first time I might add, 'cos Rainbird have done the decent thing and are launching a Spectrum *Starglider* soon. Most of the features of the 16-bit versions have been minced up and crammed into 128K of memory (I'm not sure about the possibilities of a 48K version) which means you'll be able to gasp at the solid graphics and thrill to the very clever cockpit display which represents speed, energy etc on 3D holographic style bars. Out in time for the PC show with any luck and guaranteed to wipe the smug smile off an ST/Amiga owner's face at 100 yards or your money back.

Old style games

Bob Hughes has written to ask if some of his favourite golden oldie adventures of yesteryear are now available on +3 disk. He's got the original tape-based releases of the games, which to be precise are *Vera Cruz*, *Forth Protocol* and *Sherlock*, but tragically these don't get on with his +3 disk. Alack and alas, according to my research these games aren't available on disk. However, keen +3 adventuring types needn't feel to dismayed as mounds and mounds of adventurous material is available and being a pretty keen adventuring type myself I know exactly what they are.

For starters, adventurous folk could well do worse than to take a look at Level 9's catalogue. All their quests are available on a triple format disk compatible with the +3, CPC and PCW. Particularly recommended are a trilogy of compilations - Silicon Dreams, *Jewels of Darkness* and *Time and Magic*. Each one contains three huge adventures with about as many problems as any sane person can possibly take. They'll set you back £19.95 each. Details from Level 9, PO Box 39, Weston-Super-Mare, Avon BS24 9UR.

Next recommendation goes to *Jekyll and Hyde*, a scary three parter which the real hardcore adventurers who belong to the Adventurers' Club recently voted the best mail order only adventure of the year. SAE to The Essential Myth, 54 Church Street, Tewkesbury, Glos. GL20 5RZ for details of the +3 version.

Lastly, all brave adventurer could do worse than invest in a copy of Adventure Probe fanzine which reviews practically everything remotely adventurous and is a great place to make contact with other troll bashers. Sample copy costs £1.25 from 24 Maes y Cwm, Llandudno, gwynedd, LL30 1JE. Any adventure writers out there are also welcome to send in their efforts for possible plugging.

See the light

Blooming typical, there's never been a Spectrum lightgun around when you need it and now suddenly two come around the corner at once. You'll already be fully acquainted with *The Magnum Shooter* which is soon to be bundled with the Speccy in Amstrad's latest box shifting idea. The other lightgun in question is *The Defender*, apparently due for release around the same time (July or thereabouts) courtesy of low-budget music supremos Cheetah. How the two will compare in terms of price, compatibility and quality remains to be seen. Anyone for a duel at 12 noon with lightguns?

Problems, problems

Raymond Russel wrote to say the +2A incompatibility issue has received a large dose of hype unseen since the last Reader's Digest Prize Draw. According to him the problems poor Jeff (see SPEX in Express 31) experienced with a +2A and 28 originals was probably due to dodgy head alignment on the built-in cassette deck. And he should know, having experienced similar problems until discovering a small screw which adjusts the heads and twisting it. After much twisting all of the games now load. Although Raymond reckons that Jeff is a victim of the gae old loading problem he acknowledges that some games cause problems even for the correctly aligned +2A. Luckily, these troublesome tapes can be socially reformed and tricked into working for the good of the community in just three easy steps. If you're a +2A owner with incompatibility blues try the following solutions before consigning a game to the bin.

- The game loads OK but the music is distorted. Try loading in 48K mode to get rid of it. (If there's no change it's probably meant to sound like that).
- Enter +3 Basic. Type SPECTRUM, which puts you in 48K mode, then load as normal.
- Locate the azimuth alignment screw and adjust the tape heads. Interceptor have recently released a package to help you do just this.

Raymond tells me that using the above wrinkles only 3 games out of a collection of 200 refuse to load. (For the record they are Renegade, Starstrike 2 and Cobra.) The thanks of every +2A owner goes to him hopefully loading software will be less stressful as a result. If anyone else is suffering from a bad case of incompatibility or has something else to add to the subject write to the usual address.

Robin Alway

Clive's fan club

I hope you all managed to watch the recent edition of Horizon which was devoted entirely to the man behind, in front of and generally all round the Spectrum. It was a real treat for all the Sir Clive lovers amongst you showing as it did the man's career and large number of innovative products. The Spectrum deserved more coverage than it got, this was the machine which really started the home computer boom and by my calculations netted more greenbacks for Clive than any of his other gadgets. The fact that it's still netting lots of money makes the £5 million buy out of Sinclair computing by Amstrad look like a very good deal indeed.

• Sir Clive: A good deal.

SECTOR 64 SECTOR

Paper problems

Ron James has written to ask where he can get hold of paper rolls for the 1520 printer. If anyone knows, write to us at Sector 64.

Cheat time

We haven't had any cheats for *Bubble Bobble* yet – does anyone out there know any? On the CPC *Bubble Bobble* is split into two parts and you get into the second program by typing the following password:

```
zzz133vzzzzzz4zzz1z4v44zz1y24v32
```

It works on the CPC so give it a try on the 64, you never know.

For unlimited lives on the Christmas smash *Helix*, type:

```
POKE 8500,44:POKE 13135,44:POKE
13622,44
```

followed by SYS 4096 to start the game. Thanks to Gazza Gould from Basildon for that one.

Talking shop

Top Codemasters programmer Gavin Raburn is still recovering from the nasty car crash which injured three programmers a few weeks ago. He has coded an impressive number of games including *Terminator, Equaliser, Thunderbolt, Poltergeist, Pro Skateboard* and *Rally Cross*. Gavin admits that didn't like *Terminator*, and *Equaliser* never saw the light of day, being adjudged too similar to *Wonder Boy*.

His current project is an impressive tennis simulation, which he expects to complete soon. Gavin learnt to program on a Spectrum, but was inspired by the Tony Crowther's *Loco* to turn to the Commodore 64.

He doesn't code directly on the C64 but uses the superb IBM PC-based PDS.He does all his own graphics and sound work – he says it makes changes easier and speeds up the writing process. It can still take up to five months to complete a game though.

Recently Gavin's attention has turned to the 68000 and the Amiga, but he has no definite projects in mind, so for the time being let's look forward to the tennis game.

Best budget game

Our favourite budget game for the moment has to be Ninja Commandos, from Zeppelin Games.

The graphics and game play prove much better than most full price games around today, the whole games is very slick and crisp, and it deserves to get bought in large quantities!

Incidentally, the owner of Zeppelin Games used to be a coder in the older days of the industry, mainly on the Spectrum. Anyone remember Derek Brewster?

Calling all hackers

If you have any cheats, listings or useful tips send them to us at Sector 64, NCE, 4 Queen Street, Bath BA1 1EJ.

Knowhow

Anyone out there who's actually insane enough to have tried writing machine code will tell you – scrolling the whole screen with colour is a very slow and tedious job.

However there are ways to make scrolling look fast and very smooth. When you first start a scroll all you have to do is scroll the whole thing in one go, which we can tell you is a slow process.

Now what you could do is give yourself two screens, or different banks etc., While you display one, transfer 256 bytes of data in one go onto the top part of the screen. By this time the pixel register $D016 should move one pixel.

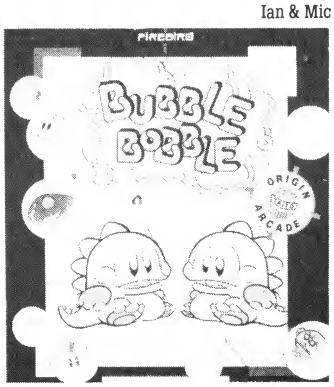
Then the next frame plots to the next 255 bytes, then the pixel register should move one pixel.

What this method does is to build up the screen in different segments over a certain number of frames, then switches to display the built screen then starts again on the other, but to give the effect that it's running every frame, you move the pixels while it's moving the screen, but you must keep the build up in sync with the pixels.

To do this with colour you have to build it up in a buffer like the chars, but because the colours map only one screen, you have to ump the colour on the screen as fast as possible, i.e. LDA xxx, STA yyy until you reach the bottom. It takes roughly 6K to do the colours.

The reason for not including the routine is because it takes a lot memory to do.

Ian & Mic



• Bubble Bobble cheats required. Come on, you lot, get writing!

New for OLD

This week we have an 'OLD' program thanks to Andrew Mowhinnie from Kings Lynn, Norfolk. But this program isn't ancient just because it's old. In fact it's a very sensible program for getting a program back from the dead when you've accidentally NEWed it or reset the machine.

Once you've typed it in SYS 49152 will execute it.

```
10 B=49152
20 FOR L= 0 TO 1:FOR D = 0 TO 15:READ A:POKE B+L*16+D,A
30 NEXT:NEXT
40 DATA 160,1,169,25,145,43,32,51,165,24,169,2,101,34,133,45,169
50 DATA 0,101,35,133,46,96,166,0,0,0,0,0,0,0,0
60 REM ************************TEST ************************
70 REM *************TYPE SYS49152 TO ACTIVATE*************
80 NEW
```

When you've typed it in, do SAVE it first as the program NEWs itself and if you've typed it in wrongly you can't use it to recover itself, if you see what we mean.

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PCW PATCH

Free text
(with every 4 gallons)

Having got my hands on Script2Base – a database for free text that works from within LocoScript 2 – I can tell you that it's really worth a look. You can store words, phrases or paragraphs as chunks of text, as many as you like. You create indexes for each disk and can browse through them from within LocoScript's disk manager looking for relevant bits to copy into that document you're writing.

The index is made up automatically for you based on words that you highlight in the chunks of text by bold, italic or whatever.

You can change disks while searching (you may well have different disks for information on different subjects).

Generally impressive and for writers or authors who feel that LocoScript 2 is just that bit limiting in that you can only work on one document at a time, it's good value. £29.95 from Encyclasoft on 0270 811890.

Pigg book of records

Lowest voltage: The PCW is designed to run of 240V, though N Wheeler from Sutton reports in this month's edition of 8000 Plus that he got his PCW8512 running off voltages down to 52V.

. Do you know of any PCW superlatives? Send to: The Pigg Book of Records, New Computer Express, 4 Queen St, Bath BA1 1EJ.

Book look

Nice to see a book for Protext at last, the fastest and most powerful word processor for the PCW. 'Protext - A PCW User's Guide' (Blackwell Scientific, £9.95) is a tutorial style book that complements the manual nicely. One or two details are glossed over a bit (eg. third party printers) but generally good and readable.

Lots of tips too (such as details on how to create your own fonts and graphics in Protext!). By a chap who claims to be editor of New Computer Express, called Ainsley. Never heard of him.

A tip (a dump)

Mr J Sampson of Newport Pagnell reminds you that pressing [EXTRA][PTR] at any time produces a 'screen dump' on an 8512 or 8256 printer – i.e. an exact (black on white) image dot-for-dot of what the screen displays at that point. It is actually in the manual somewhere, though it's worth mentioning again. (It works whatever you're in – LocoScript, CP/M, BASIC – apart from a few games).

It can be useful for producing a paper copy of the disk contents from LocoScript's main 'Disc Manager'. Cut it to size, stick it in the disk case and you've got an instant and detailed label.

Compo is coming

As Express has entered competition season but seem unlikely to do anything for the PCW, I'll try to organise some freebies for PCW Patch readers too. Watch this space!

Basil Pigg

QL corner

XLISP

Richard Alexander of CGH Services has sent me a copy of a QL version of David Betz's excellent public domain XLISP interpreter. XLISP is written in C, and I already had versions for the PC, Amiga and transputer, so it was interesting to see how the QL implementation compared.

Ralf Biedemann, of Langwedel, W Germany, ported the package to the QL, using the Metacomco Lattice C compiler, and he reports that he had quite a few problems getting the program compiled.

I was pleased to see that it was version 1.7, which is the same as that for the other machines, and it seems to work quite well, apart from a problem with the cursor keys - backspace didn't!

XLISP is an excellent implementation of the language, and is quite close to Common LISP, so most of the programs in the books on LISP should work.

XLISP is available on 3.5" and 5.25" double-sided disk only (it comes with all the source code), for £2.20, from CGH Services, Cwm Gwen Hall, Pencader, Dyfed, Cymru, SA39 9HA. You have to provide a formatted disk. The executable files and documentation should just fit on a cartridge, and I have suggested to Richard that he also provides it in this form.

Clone Wolf

Clone Program

If you need to make a backup of a cartridge, and you don't have a toolkit, the following little program will make the job much easier. It assumes that the source cartridge is in drive 1 and a formatted destination cartridge is in drive 2.

```
100 OPEN NEW #3, mdv2_dir
110 DIR #3, mdv1_
120 OPEN_IN #3, mdv2_dir
130 FOR 1 = 1 TO 2: INPUT #3, fname$
140 REPeat loop
150    IF EOF (#3) THEN EXIT loop
160    INPUT #3, fname$
170    PRINT fname$
180    COPY "mdv1_"&fname$ TO
"mdv2_"&fname$
290 END REPeat loop
300 CLOSE #3
310 DELETE mdv2_dir
```

Ambition

Ambition is a multi-player business-orientated strategy board game for the QL (and PC), developed by Alex Waye and his brother Chris. If you are on your own, you can play against the computer, however.

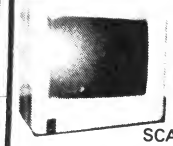
The board is displayed on the screen, and is a representation of an imaginary town, with various construction sites. The object of the game is to develop these sites.

Ambition was written in the BCPL language (the precursor of C), and took something like two man-years to develop. If you like playing chess and bridge, Ambition shoudl appeal to you. You need a 512K expansion.

Ambition costs £19.95, and is available from Waye Ahead, Curly Cottage, W Hendred, Wantage, Oxon. OX12 8RR.

John Torofex

THOMSON RGB MONITORS



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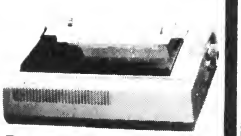

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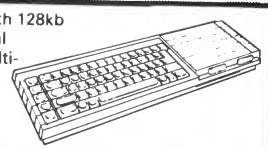

Fast 68008 CPU combined with 128kb RAM makes this a very special bargain. Features include multi-tasking, twin fast-access Microdrives, twin serial ports, twin user ports, TV and monitor outputs as standard. Package includes four business programs, i.e. Wordprocessor, Database, Spreadsheet and Graphics package.

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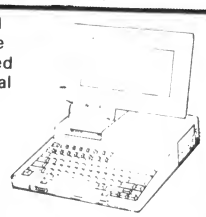

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MSXTRA

On spec

I now have detailed specifications of the Philips MSX computers that will shortly be made available to the UK public.

The Philips NMS 8235has previously been released in the UK on the grey market. It has a single-sided 3.5-inch disk drive built into the computer, much like the Atari ST. It also has 128K RAM and 128K Video RAM, a built in battery-backed clock, and memory mapping.

The NMS 8250 looks far more impressive, the keyboard and processor unit being in separate cases, like the Sony HB 700 model. It also sports a numeric keypad, and is quite stunning to look at and is a 128K model, with built in double-sided drive which is 720Kb formatted. There is a RAM disk function and memory mapping.

Prices: NMS 8235 £349.00 inc VAT, and NMS 8250 £409.00 including VAT. Details on 0775 66477. The suppliers will also try to supply things such as printers.

Tip of the Valley

A tip to those of you who play Konami's *Kings Valley 2*, type in the password CHEETING, and you will get infinite lives. I hope this works, I can't try it myself as I lent my copy of this game to a friend, and he hasn't returned it yet (Yes Colin, that means you).

Puppet leader

Grandslam entertainments continue to convert titles to the MSX, with *Thunderbirds* their next release. In fact it may even be available as you read this column.

Keith Neal

2 late?

It now seems less certain that the MSX 2+ computers will be officially released in Europe this year. I have been told, by a fairly reliable source that sales of these computers in Japan has been disappointing, and the public response to the computers on display at the Hanover computer show earlier this year was also poorer than expected.

Could this be the start of the end of MSX as we know it? It seems that in Japan at present, if you wish to play games, you go out and buy a games console, as in Japan you can purchase a good console for well under a hundred pounds.

Surely it is time that the MSX system was given a chance to succeed, at least give the system a faster processor so that it can compete with the likes of Atari ST and Amiga. If you have any thoughts on this subject, eg your opinions on the MSX 2+, write to MSXtra care of Express. It would be interesting to see if anyone would actually want to purchase an MSX 2+ should they become available.

BEEB BOX

Taxing polls

Most people have little idea of how a computer actually works. They tend to think that it sits there passively until somebody actually sits down at the keyboard. The reality couldn't be more different, because the computer is always running a program.

That program in the BBC is called the Machine Operating System (MOS). What it spends most of it's life doing is checking, or polling as it's called, the various input/output devices attached, including the keyboard to see if anything has happened.

Other devices are the serial port, disk drive and monitor.

This all happens very quickly, not just because the CPU is fast, but because when it checks a device, it actually goes to the chip that controls the device and retrieves a number from that chip. The number tells the CPU what state the device is in. This means that the devices are in effect little computers which can be programmed, if you know how.

Take the 6845 CRT controller. This was originally designed for monochrome 80-column display, but by using some clever dodges can be made to produce colour. The fastest way of controlling this is to write directly to the SHEILA chip at memory addresses &FE00 and &FE01. However if you're slightly less of a wizard with machine code then the VDU codes may be your best bet, VDU 23,0 is your jumping-off point, but many others are useful too. Another point to note, particularly for games programmers, or those who want to do some number crunching that it is possible to turn off some of these checks and so increase the effective speed of the computer.

MIDI for misers

The mystery over pricing the A3000's MIDI expansion has been solved. According to a press release from Acorn, machines complete with MIDI/user port will cost £698, so that means the card must be £49, as the base machine retails at £649 (plus VAT of course). The main point though was that Acorn have become a member of the Music Industry Association. What does this mean? Probably nothing, but it's just possible that Acorn might be looking for some handy alliances within the industry with a view to getting a larger slice of a burgeoning market.

Wising up

I'd like to say nice things about *Money Wise* which is a book-keeping package for the small business, but it didn't work. That's a shame, because it can handle VAT calculations, which is handy. I'll return to *Money Wise* when I can get a working copy. One thing to note though was the presence of a dongle. This makes sense in terms of protecting your valuable accounting data as well as copy protection.

Andrew Brown

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ARCHIMEDES LORE

It's a cracker!

I've been using the *TrandDisk IV* program from Digicom for the last few days and its wonderful. The program is designed to allow you to make back-ups of your cassette software and transfer those programs to disk.

Although the Ataris have a relatively fast and reliable cassette system, it's absolutely awful when compared to even the slowest disk drive. Many people, after having upgraded to disk drives, are left with mountains of software on cassette that they'd naturally like to run from disk.

Over the years several companies both here and in the States have produced utility programs to transfer cassette programs to disk with varying degrees of success, but since Digicom launched their 'cracking' program, almost all cassette software can be transfered.

Getting it up (...and running)

Getting *TransDisk* running is very straightforward.

Once you have a formatted disk you can begin to transfer the cassette programs. The *TransDisk* program offers two modes of cassette loading. The first is the 'standard load' which will boot cassettes using Atari data standards. If this method fails (due to protection methods) then you are advised to try the 'non-standard load' which will cope with practically everything.

With the program to transfer in memory you're ready to make a disk file of it. This process involves you giving the program a name. The name can be anything which conforms to the standard DOS naming conventions of eight characters with a three letter extension.

And that's it! To use transferred programs, you simply boot the computer using the disk containing the file, select the program from the menu (written to the disk durng the initialisation process), and the file will be loaded and run.

Verdict

A super utility. I tried it with several of my cassette programs and it worked every time. Recommended and well worth the money. TransDisk is avialable from Digicom (0908 78008) for £19.95. The company market a range of products for the eight-bit machines – notably *The Freezer* – which I shall attempt to obtain for review in a later column.

Edmund Blake

Ice cold in Alex.

The annual Atari show is almost upon us and I shall be making an appearance in an attempt to sniff out any new eight-bit products lurking in dark corners. I'm sorry to say that each year the quota of bits 'n' pieces for the eight-bitters grows ever smaller but – fingers crossed – something will turn up. In the meantime, keep those letters rolling in. See you next time.

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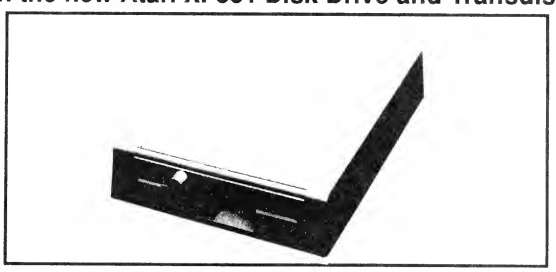

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Problems with your computer? Express's Agony column has the answer. Write in strictest confidence to Uncle Techtip.

Best tips win a freebie – so don't forget to tell us your address and machine!

TIP!

Noises of the Spectrum

In Tech tips (*Express 32*) you advised Andrew Downs of Guisborough that he would need an interface to access a MIDI instrument from his Spectrum +3.

I believe you are incorrect (...so do about five million other tech tippers. I'm afraid the wrong 'uns occasionally slip through – Uncle Techtip). I also have a Spectrum +3 and a keyboard with MIDI facility and I obtained a lead to connect the two together from a small but well stocked computer shop in Colchester. I just asked for a +3 to MIDI lead. It has a telephone type plug on one end and a 5 pin DIN plug on the other.

I don't remember the make, but I imagine it's freely available. I can play my keyboard using BASIC with the *play command as described on page 141 of the Spectrum +3 manual.

Ken Laken, Harwich, Essex.

HELP!

Drive round the bend

I recently purchased an external 3.5 inch drive for my Atari ST. On connecting it up (correctly) I found it caused my existing internal drive not to work. Although the new external drive works OK, the internal one won't acknowledge that there is a disk in the drive, it just whirs around as though there isn't one a disk present. The internal drive goes back to normal when the external drive is disconnected from the computer.

Another thing: when I switch on the computer, it tries to access both drives at the same time, but again acts as though there is no disk in either drive.

I would be grateful if you could tell me what's wrong; the computer, lead, external disk drive or me!

Mark Hughes, Norris Green, Liverpool.

• It could depend on the brand of drive. Those originally intended for use with the IBM-PC (which, by the way, work perfectly with the ST) have a switch in the form of a metal 'toggle' and three pins which manually select which drive (i.e. 'a', 'b' etc) the device will work as. Locate the switch – usually at the rear left-hand side – slip the toggle off the outer/inner pins and push it over the second outer pin and the middle pin and try again. If you still experience problems, then you may have a faulty external drive. Take it back from whence it came and ask for a replacement.

HELP!

Spectrum Q&A

Please could you answer a few questions for me?

1. Is the Spectrum +3 compatible with earlier models?

2. Is there a C compiler available for the MSX and if so, how much is it?

3. Can you copy Spectrum +3 cassette software onto disk?

4. Which is the best computer available under £500 for both educational and game use?

R. Baretto, Brixton, London.

• 1. Yes and no. Most of the earlier software will work perfectly with the Spectrum +3, but I've heard of one or two rogue products which refuse all attempts to get them to run.

2. Yes. CP/M C is available for the MSX machines and can be bought for the paltry sum of £49.95 from HiSoft. Call them on 0525 718181.

3. Yes. Several products are available which break copy protection and allow you to transfer games to disk. Call Kobrahsoft on 078 130 5244 who market a range of transfer utilities.

4. Take a look at Express issue 23 for the low down on the best sub-£500 computers. It's available for the ludicrously small price of 75p from The Old Barn, Somerton, Somerset.

TIP!

Rotronics club

One final word on the great 'Salmeco' track down. There is a company contactable on 0628 531244 who will undertake the repair of Rotronics printers with a glad heart and a cheery song on their lips. Uncle Techtip is much obliged to tech tipper Steven Bromwich for the information.

HELP!

Leaping into auction

I read with interest the article on computer auctions as I had attended the first TraderDesk auction at the BAWA on May 6th. The items I am interested in, and almost bought, were a monitor and 3.5 inch disk drive to fit my Amiga A500. The sale prices were very tempting. The items were

1. 19" Microvitec multiscan monitor

2. 19" Microvitec RGB colour monitor

3. 15" Thompson VGA monitor

4. NEC 1/3 height 3.5 inch drive

5. Toshiba 3.5 inch drive.

The questions are, would these items work? Would they need any modifications?

M. E. Hurst, Mangotsfield, Bristol

• Both the Microvitec multiscan monitor and Toshiba drive would've worked perfectly with the Amiga, although you'd need the correct cable in order to connect the drive (readily available from good drive suppliers such as Cumana). Let's hope they're still there at the next auction!

HELP!

Serious stuff

I use a Spectrum +3 mainly for games, but also for word processing (Tasword 3). My wife has recently started a course designed for women who have left work and want to start office work again. Part of the course concerns computer work i.e. spread sheets and databases and I have been trying without success to obtain some software for my Spectrum which will allow my wife to practise at home.

Would it better for me to obtain a CP/M program and go for PCW/ CPC software (and if so could you recommend any) or do you know of anything specifically intended for the +3?

A. O' Flannagan, Eastham, South Wirral

• Serious Spectrum software, huh? Well, it's a tall order but call Worldwide Software on 0896 57004. Worldwide sell a range of serious bits'n'pieces for the tired old Spectrum such as databases (Masterfile +3), word processors (Professional Adv. Writer) and spreadsheets (Tascalc +3).

You could, as you suggest, run software intended for the Amstrad machines under CP/M, which would provide you with a large range of business software from which to choose. Word processors like Protext and WordStar, databases like AtLast and Masterfile 8000 (the same as Masterfile +3), spreadsheets like SuperCalc, Sage Accounts, Money Manager...

HELP!

Duck soup

I am the proud owner of an Atari 800XL which I use for games but also for many serious purposes such as word processing and keeping a database of the egg laying yields of my Aylesbury ducks.

I am very pleased with this machine and have recently saved the money to upgrade my system to disk – the new XF551 disk drive looks like just what I want. The problem is my software collection is held entirely on cassette. All of the programs that I've written in BASIC will be easy to put on disk, but what about the commercial stuff, such as Solo Flight, Mercenary and the others? Can I simply load them into memory then stop them and save to disk or do I need some kind of program to break the copy protection?

My knowledge of computers is minimal, so if I do need a utility program, will it be easy to use? Your help is much appreciated.

G. Catling, Norwich, Norfolk

• The XF551 is a well-made device which is an excellent addition to any system. As you said in the letter, although your own programs will be easy to transfer to disk, commercial software is usually replete with several layers of rather heavy protection.

Fortunately for you (if not for the hard working games programmers!) there are several utilities which will remove protection of cassette software and allow you to transfer the programs to disk. One of the best is TransDisk IV by Digicom (reviewed by Edmund Blake in the Atari 8-bot column, *Antics Roadshow*, in this issue).

The program costs £19.95. Call Digicom on 0908 78008.

BUG OF THE WEEK

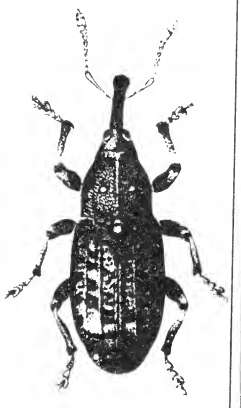
There is a bug in PCW Scrabble, one of the most popular games for the machine.

The computer always insists on showing you the word it's currently thinking of, whether you specify this option or not. This actually makes it easier for you as you can force it to play a word which is to your advantage.

Also, if neither player can finish, the machine can't recognise this stalemate.

Michael Toddy, Dublin

• Your bug has just won you a year's subscription. Anyone else like one? Then get writing...



• **Pissodes piceae. This genus is represented by 8 species in Europe, 3 of which live in Britain. The larvae live in the code of various word games and according to superstition can aid telepathic communication**

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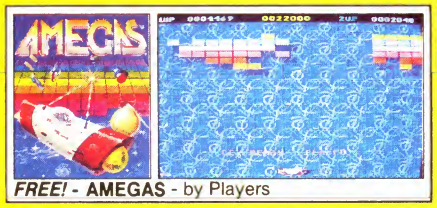

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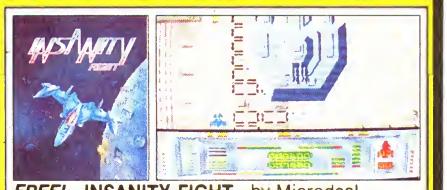

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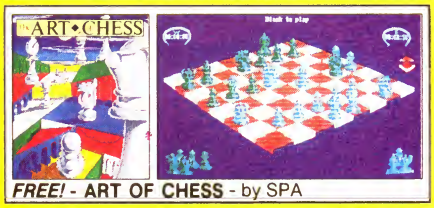

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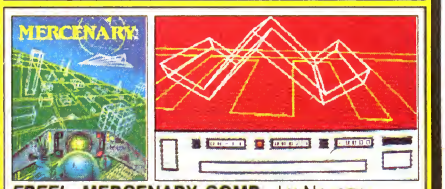

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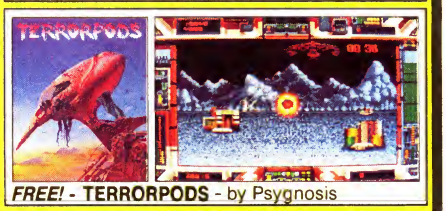

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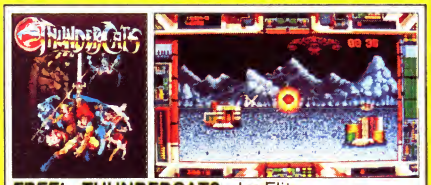
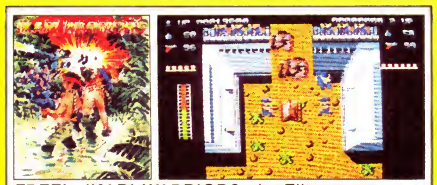


FREE! - THUNDERCATS - by Elite



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FREE! - WIZBALL - by Ocean

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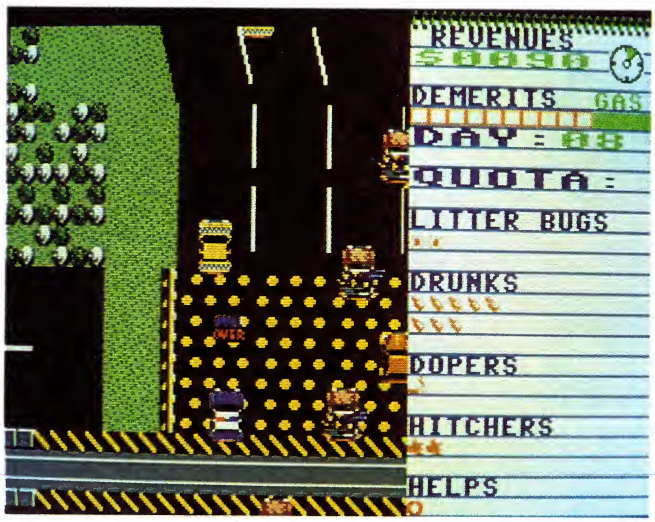
Calling all cars, calling all cars!

Rik Haynes goes on the lookout for six new releases



APB
TENGEN/DOMARK

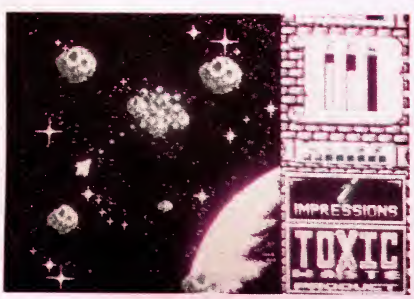
APB – All Points Bulletin is a conversion of the humorous racing-sim coin-op, as you help Officer Bob apprehend litter louts, drunks and hitchhikers. Along the way you'll be able to grab a donut, and customise your wheels – as you boldly go about your law enforcement. Out sometime in late Summer on Spectrum, C64, CPC, ST, Amiga and PC.

INDIANA JONES AND THE LAST CRUSADE
LUCASFILM GAMES/US GOLD

Already mentioned in *Express* previews 31, here's a chance to see the Spectrum and C64 shots of the forthcoming Indy action game. Due for release next month on Spectrum, C64, CPC, ST, Amiga and PC, Indy action is a co-development between Lucasfilm Games and US Gold, with inspiration taking from the film's best chase and fighting sequences.

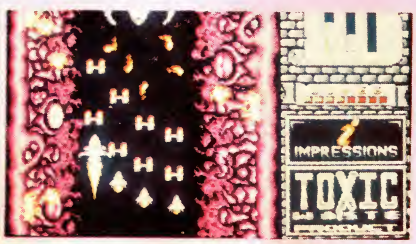
● Whipping up a storm on the Spectrum

● C64 • Indy weighing up the situation



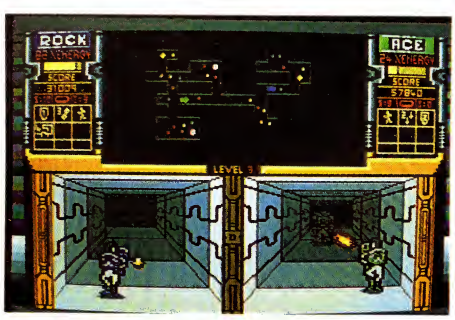
CHARIOTS OF WRATH
IMPRESSIONS

The second release from new software company Impressions, *Chariots of Wrath* features no less than seven different game sections, including a vertically-scrolling shoot'em-up stage with "three-plane, interactive parallax, super-smooth, scrolling". Obviously the camera used to take this screen-shot (too light and out of focus) failed to capture this monumental achievement! Out soon on ST and Amiga.



XYBOTS
TENGEN/DOMARK

Another preview update from *Express* 31, this screen shot from the C64 version of *Xybots* is looks promising. A coin-op conversion, *Xybots* consists of a one- or simultaneous two-player shoot-em'up, with you wandering the corridors of an underground labyrinth, taking out anything you meet along the way. Due anytime on Spectrum, C64, CPC, ST, Amiga and PC.



PREDATOR
SUPERIOR SOFTWARE

A welcome change to the preview pages, as we've got a BBC screen shot of the *Predator* action adventure game from Superior Software. A movie license originally from Activision, this multi-stage game places you in the role of Arnie Schwarzenegger in a mission to wipe out some South American terrorists. Unfortunately you're also up against a mysterious alien Predator who wants to skin you alive! Out now on Spectrum, C64, CPC, ST, and of course BBC.

FERRARI FORMULA ONE
ELECTRONIC ARTS

EA is finally going to bring out this popular Amiga racing-simulation onto the ST and PC next month – and it's even including a free Ferrari sticker with each one! Controlling every aspect of your Formula One Ferrari turbonutter – from ROM Turbo boost to aerodynamic wind-tunnel tests – you'll compete on 18 world famous tracks, against the likes of Alain Prost.

● This week we battled with *Waterloo*, got *Skweek* squared up, nearly saw eye to eye with Thalamus, punched and kicked Ocean's Dragon, got hot and bothered with *Red Heat*, but our enthusiasm just fizzled out with the latest release from Psyclapse.

CAPTAIN FIZZ

PSYCLAPSE/PSYGNOSIS

Spectrum • £9.99cs
Also on ST, Amiga
Out soon on C64, PC

Career around the Blaster-trons' fearsome abode in an attempt to clear the area of infestation and knock out the central computer.

● VERSION UPDATE

You play a pink sousaphone (or a snail that's had its shell torn off?) doing battle with Blaster-trons – kind of blue silicon crab lice – intent on reducing you to dead meat, or so the blurb on the packaging would have you believe.

You must survive twenty levels of barely discernible gameplay whereupon you encounter the ultimate objective – the central computer responsible for the crab infestation. Put paid to its little game and you've put paid to your own. As the French say (at the end of those wonderful monochrome masterpieces) FIN.

● GRAPHICS AND SOUND

Graphics are appalling! It's impossible to tell just what the sprite you control is supposed to be. The rest of the creatures are illegible, the gameplay area is crammed into approximately one quarter of the screen, the rest adorned with other rubbish entirely superfluous to your progress.

Sound is a rather typical snatch of digitised music absolutely flogged to death in an endless loop of re-iteration with about as much appeal as the average orange-robed Buddhist monk chanting his mantras for an afternoon...

● OTHER VERSIONS

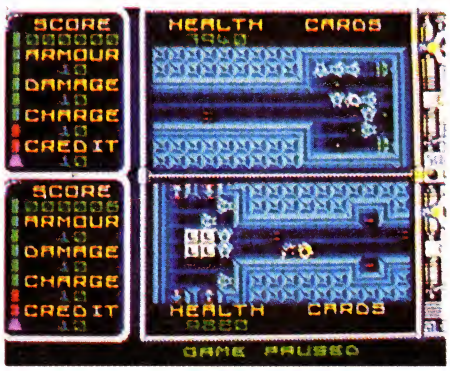
The ST version was reviewed in *Express* 13, where it was awarded a better score because it offered better value for money.

● EXPRESS VERDICT

I'm absolutely incredulous that in these days of monster chips driving mega-fast computers running state of the art software there are still software houses which dare to foist detritus such as this on unsuspecting kids in an attempt to relieve them of what little blue and folding they can prise from the parent's coffers. I don't like it, see?

★

Fielding Mellish

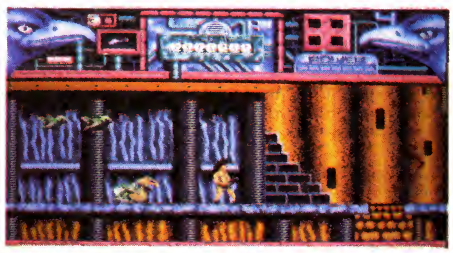


• Not much sparkle in this game

HAWKEYE

THALAMUS

Amiga • £19.99dk
Also on C64
Out soon on ST



• Eye, eye... Thalamus hawking a 16-bit game then?

***Hawkeye* is the first 16-bit release from Thalamus, and is a conversion of the popular C64 horizontally-scrolling arcade platform adventure.**

● GAMEPLAY

Taking control of the hero, a synthetic life form called Hawkeye, you must travel through 12 levels of horizontally-scrolling platforms in a quest to collect all the puzzle pieces scattered over each level. You can use your laser, pistol, machine gun or rocket launcher to take out any scum stopping your further progress.

● GRAPHICS AND SOUND

The sprites are detailed and coloured sufficiently, but are rather too small. The parallax scrolling backdrops are reasonably good. Unfortunately, the sound-effects and in-game soundtrack are a little muffled.

● OTHER VERSIONS

Thalamus has produced some brilliant C64 games in the past, like *Armalyte*, *Delta* and *Sanxion*. *Hawkeye*

DRAGON NINJA

OCEAN

ST • £19.99dk
Also on Spectrum, C64, CPC, Amiga

Ocean's latest 16-bitter is a conversion of the Data East martial arts coin-op, *Dragon Ninja*.

● VERSION UPDATE

As a street-wise, well 'ard geezer, you take on the scum of the city as you strive to save The Pres from a bunch of bad guys. During play, you travel through various horizontally-scrolling landscapes, populated by ninjas, guard dogs and the occasional girlie warrior. However, you can repel these wretches with a well aimed punch or kick, or by using any of the weapons that you'll find along the way.

● GRAPHICS AND SOUND

Visuals are effective, with biggish sprites and well drawn backdrops. Sound-effects are perfunctory, but the whole affair is let down by a lack of speed and the unsmooth scrolling.

● OTHER VERSIONS

The CPC version (reviewed in *Express* 12) is by far the best 8-bit version, with bright colourful sprites and backdrops and amazingly fast action considering the amount of on-screen activity. C64 *Dragon Ninja* isn't that bad either and was reviewed in *Express* 15. Over on the Amiga, the action's a little faster and the animation a little smoother.

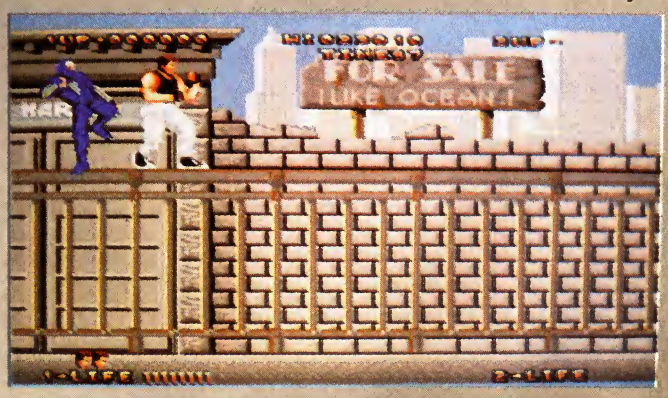
● EXPRESS VERDICT

A welcome addition to the 16-bit beat'em-up, *Dragon Ninja* is well worth considering, though the kick-'em-to-death-'em-up genre is still dominated by the excellent *IK+* from System Three.

★ ★ ★

Rik Haynes

• Not giving a truck about these Ninjas!



• Blue Ninja coming up from behind

was also well received when it was launched on the C64 last year, thanks to its stunning parallax scrolling and stylish visual design.

● EXPRESS VERDICT

Hawkeye was easily more impressive when it was released last year on the C64. The Amiga version hasn't been improved enough in the graphics and sound departments. That said, its still an enjoyable enough game – although the gameplay is a little too repetitive.

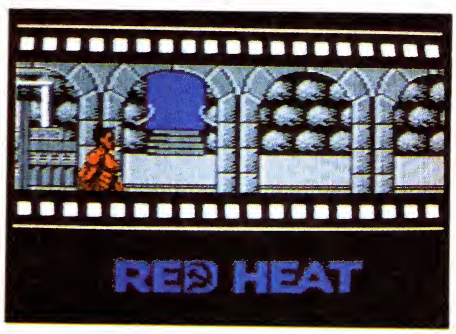
★ ★ ★

Rik Haynes

RED HEAT

OCEAN

C64 • £9.99cs, £14.99dk
Out soon on Spectrum, CPC, ST, Amiga



• Are you Red'y for this?

***Red Heat* is the computer game based on the action thriller movie starring Arnie baby Schwarzenegger.**

● GAMEPLAY

The game is split into four levels, each based on a scene from the film, with you as Arnie playing a Soviet cop over in America to apprehend some Russkie crims. The first stage sees you in a sauna, battling against some thugs, using the odd well placed head-butt to get your message across.

● GRAPHICS AND SOUND

The display is distinctive, and the sprites very bold and reminiscent of the films characters. All the hallmarks of good audio-visual design are here, from the thumping soundtrack to your head-butting Arnie sprite.

● OTHER VERSIONS

We haven't seen the other versions yet.

● EXPRESS VERDICT

Presentation is up to Ocean's high standards, but when we played *Red Heat* we were confined to playing only the first level. The gameplay was repetitive and limited, and when we lost a life we were returned to the start agian. We hate this type of approach. What's the point in having a multi-stage game if the first level is too boring to complete?

★ ★

Rik Haynes

SKWEEK

LORICIELS/US GOLD

CPC • £9.99cs, £14.99dk
Also on ST, AMIGA

Control a cute little fluffy potato around a backdrop of blue squares in an attempt to make them pink.

● GAMEPLAY

Well, despite the introduction, this game *is* fun. The cute potato is incredibly cute, his movement is poetry – smooth scrolling in all directions making the objective of turning blue squares into pink ones a positive pleasure. There's also various non-cute, fierce foe just waiting to gobble your pink potato but a quick squeeze of the fire button will have them running for cover.

Retrieve egg timers, hamburgers, ice cream, shoes and teddy bears in order to endow yourself with extra abilities. If you succeed in your mission to turn all the squares pink, the female inhabitants of the planet will return, and considering they're known as the 'skweezettes', you can be sure that fun and games will ensue.

● GRAPHICS AND SOUND

Colourful, with movement as smooth as Emma Freud's thigh, the graphics are every bit as good as their 16-bit counterparts. Sound? Good if not great. Catchy like a Shad's foot-tapper, but not something you whistle in mixed company if you want to retain any semblance of street credibility.

● OTHER VERSIONS

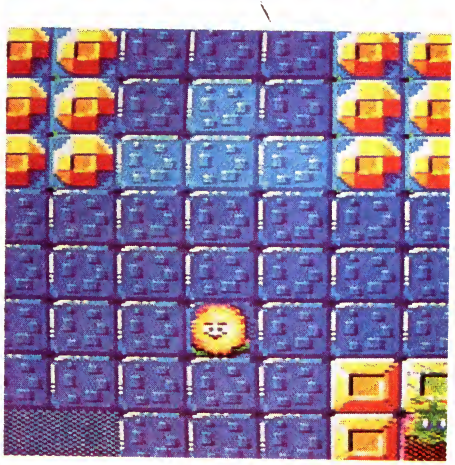
The ST version, with the exception of a little more colour, is exactly the same as CPC *Skweek*.

● EXPRESS VERDICT

Apart from the horrendous name of the leading character – *Skweek*, sounds like someone running their finger nails down a blackboard, doesn't it? – the game is thoughtfully programmed, a rainbow of colours and fun to play.

★ ★ ★

Fielding Mellish



• Cute, cuddly and strictly reserved for kiddies

WATERLOO

PSS/MIRRORSOFT

PC • £24.99
Also on ST, Amiga

Recreate ze battle of zee Vaterloo in zis tactical seemulation from Mirrorsoft...

● GAMEPLAY

You adopt the persona of either Wellington or Napolean and re-fight the battle of Waterloo. Yes, *another* war game, but what makes this one stand out, is that you see on screen only what you'd have seen if you'd actually been one of the principal characters present at the battle.

The battle takes place between 11.30 in the morning and 9.30 in the evening. You can issue up to eight commands to you officers when it's your turn, and each block of commands represents 15 minutes of the available time. The command parser is particularly good and can understand complex messages so you can really have your subordinates rushing hither and thither in an effort to follow your every instruction.

● GRAPHICS AND SOUND

The battle field really is excellent, all of your resources and defences can be clearly seen, making tactical manoeuvring a treat. Sound? Well what do you expect in a game of this sort?

● OTHER VERSIONS

We haven't seen the other versions of *Waterloo* yet, expect an update as soon as we do.

● EXPRESS VERDICT

Sound gameplay combined with an extraordinary feeling of realism combine to make this war game stand head and shoulders above anything else I've seen in this genre. If fighting the wars of yesteryear is your bag, buy this game, you won't be disappointed.

★ ★ ★ ★

Lucy Brown

• It's a good job PSS didn't use that appalling ABBA song on the title page!

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Amstrad PC1512/1640/2086

We offer a wide choice of Amstrad PCs with many upgrade options, including the very latest PC2086 range. For the hard disk option, check our 'Evesham Upgraded Models'. Only the best will do - so we normally upgrade by means of a Western Digital Filecard, which includes XTree and SpeedRead software; however on single drive 1512/1640 models we can offer internal installations at the same price (leaving more expansion room but no upgrade opportunity for a 2nd floppy drive). On-site service contracts are available on any PC1512/1640 model for only £39.00 inc.VAT. Prices in lighter type exclude VAT.

Free with 1512 models... Ability and 4 US Gold Games

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PC Tools Deluxe Version 5... Other utilities may claim to 'do it all' but only PC Tools Deluxe is the complete disk utility package, providing a fast hard disk backup, the best undelete available, 100% safe formatting of floppy and hard disks, unformat, reliable disk caching, compress facility, in fact everything required to manage & protect your data at a sensible price..... **£49.95**

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We use and recommend Star printers since they do offer an unbeatable combination of features, print quality, reliability and value. Make the sensible decision - get it right with a Star printer at our special, all in, prices.

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Star NX-15 budget wide carriage printer	£329.00
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Panasonic KXP1081 reliable budget 10" printer 120/24 cps	£169.00
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Computer Chaos

More true life cases from Mel Croucher's archives

Columbia University, New York, USA

Students enter their IBM-1401 computer in a football game competition. It wins easily, after picking 57 winning games out of 80 with the nearest human runner-up getting only 54 results correct. The computer receives a $25 gift voucher at a neighbourhood clothing store, but can only claim its prize in person.

The students dutifully cart it along to the store, plug it in and get it to order several items of software. Namely underpants.

(New York Times)

Chichester, West Sussex, England

Dear Mel, Tom Lane's water bill (Computer Chaos , *Express* 31) ain't a patch on my dealings with the Southern Electricity Board's computer.

After working abroad for six months, I had my supply reconnected by the SEB and their infernal machine subtracted kilowatt-hours from payments made in order to bill me. The balance came to minus £0.0 and I was charged accordingly. So I paid nothing.

After fourteen days the computer sent me a red Final Demand. After a month it fired off a word-processed letter informing me that unless I settled up immediately my juice would be cut off.

I wrote it a cheque for £0.00 and the issue was settled at once.

(Andy Monroe)

Florida, USA

My father, Otto R Spies, is a research scientist at Burroughs when the launch of the space craft Mariner-1 fails disastrously, costing billions of dollars. He brings home an internal memo explaining that Mariner bombed because a vital program got scrambled when a full stop was substituted for a comma. The memo ends with the phrase 'no detail is to (sic) small to be overlooked'.

(Nicholas Spies)

Rochester, New York State, USA

4,800 customers of the Rochester Telephone Corporation are surprised to find that they have been billed huge amounts for making calls to Egypt.

The corporation later apologises, explaining that its computer had added a zero to the local Area Code. This had the effect of shifting all local calls from the shores of Lake Ontario to just East of the Sahara Desert.

(Online)

Washington DC, USA

US NATO Commander Elmer B Staats reports to Congress that when the United States Armed Forces got kicked out of France in 1967, $107 million in military hardware got 'mislaid' because of a computer error.

On the up-side, the same computer gave them a $400,000 bonus in medical supplies, although Staats admitted that this didn't make up for the lost guns and ammo.

When Congress demands that the computer error be located as soon as possible, he replies that this task will take al little over five years.

(The Pentagon Papers)

Placerville, California, USA

The El Dorado County Jail should have been open for business last September. Unfortunately the computerised security system is making it far too open for business. Thirteen computers control units are refusing to operate electronic locks, forcing the contractors to pay a daily penalty of $1,250.

Meanwhile Jail Commander Ed Newman says 'It wouldn't be so bad it it was just the locks, but the whole system refuses to obey me. For example, the television monitors keep going crazy. Last night they showed an episode of 'The Lucy Show'.

(Associated Press)

Shoot from the Lip... the week's most quotable sayings

'With the Archimedes' capability for graphics it's obviously the ultimate games machine. And we want to make a lot of money out of it.'
David Kelly of Cambridge Software International, which is putting the first games bindle for the machine together. From little Acorns, big bucks...

'We've been trying to get people into our shops for the last twenty-five years. Distance shopping will reverse that.'
Christopher Curry on his 'Keyline' home shopping terminal that promises to bring Asda's aisles to your front room

'Never, ever again will we advertise a product until we've actually got it in our hands.'
Database's Chris Payne lamenting the failure of the programmers of six-months-overdue Mini Office Professional Plus to stick to their deadline

'Apricot Signs Specialix to Supply the SI series of High Performance I/O Controllers for New VX FTserver Series Of Unix Hosts and Complete Range of Xenix Systems'
Press release headline from Apricot setting a world best this year in totally uninteresting nonsense

Next Week

The PD File
Express reveals the very best in free software for you machine

The Interactive Nightclub
Is this the shape of nights out to come?

Laptops
The best in go-anywhere computing

Win an Archimedes A3000!
Your chance to win £1,000 worth of State-of-the-Art computer!

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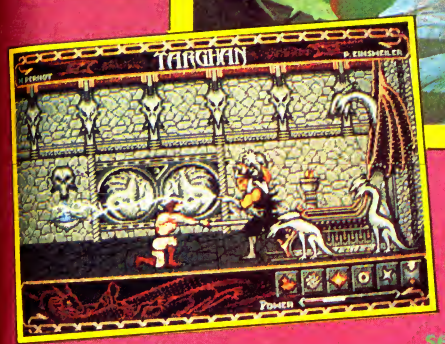
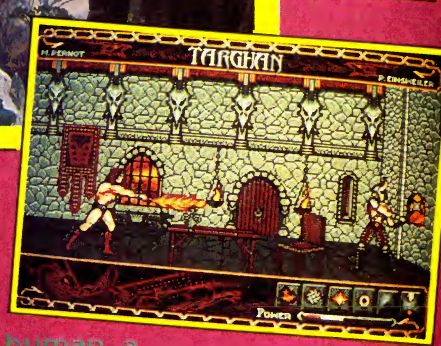
TARGHAN





Targhan

Far from Edengarhn is the castle of the evil one.

Far from your village, a lord keeps the secret, such a powerful lord that he cannot be human, a creature floating a world that dies and grows again . . .

Targhan is probably the most stunning game you'll ever play.

Targhan is an adventure-action game with more than 120 landscapes and 40 different characters. The game is playable on either keyboard or joystick.

The game offers digitised sound and outstanding graphics.

It will be released on Amiga, Atari and PC (EGA, VGA and CGA) by the end of May. The game will run on both colour and mono screens.

Look for reviews in *Commodore User, Popular, The One, C&VG, Ace, ZAP, The Games Machine* and *Amiga User International* soon!

Silmarils

To enter our competition please send your warranty cards of TARGHAN and complete the following:

I like the game Targhan because .....

.....

Send your entries to: **UNIT 1 (Rear of 7), WELLINGTON ROAD, SANDHURST, SURREY GU17 8AW ☎ (0252) 877431-879718 • Fax: (0252) 877431**

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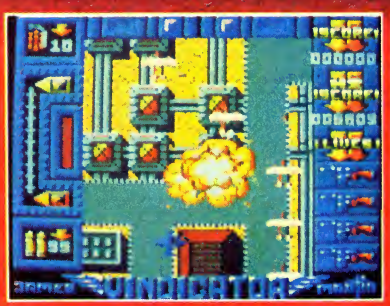
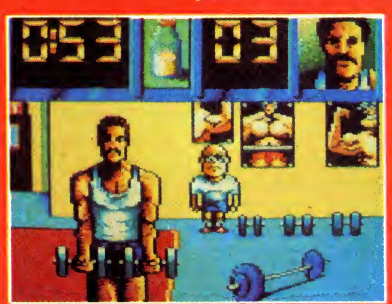
SOLID 3 Dimensional Landscapes like you've never seen before. Thanks to Freescape – it feels like you're actually there. Interact with weird alien mechanisms, avoiding the Ketars Defences and gain access to the many sections of the Moon, Mitral. Experience Driller and Freescape in action ... "A NEW 3 DIMENSIONAL REALITY!" CRASH.

THE VINDICATOR
"If you've spent hours developing your trigger finger here's a game to put it to the test ... it's all action" CPC SILVER AWARD – CPC COMPUTING "each level has a high standard of graphics ... The Vindicator is an excellent game." CRASH





DALEY THOMPSON'S OLYMPIC CHALLENGE "Excellently animated with some great back-drops ... Daley Thompson's Olympic Challenge is first rate ... another gold medal winner from Ocean."
A CRASH SMASH – CRASH.

S.D.I.
"The graphics are great with fast flowing backgrounds and smooth, speedy sprites. I now know what I would do if the five minute warning went off ... I would play S.D.I." F.A.B – COMPUTER GAMES WEEK.

CAPTAIN BLOOD
"To sum up – Bloody excellent." "The graphics and sound are excellent ... an intelligent strategy game."
YOUR SINCLAIR

Special Action from... ocean

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